



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE PHONE + BLUETOOTH and WLAN 2.4GHz b/g/n

MODEL NUMBER: SM-J110F, SM-J110F/DS, and SM-J110G/DS

FCC ID: A3LSMJ110F

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM/WCDMA/LTE Phone + Bluetooth and WLAN 2.4GHz b/g/n
MODEL: SM-J110F, SM-J110F/DS, and SM-J110G/DS
SERIAL NUMBER: 2152666(Conducted), 2152667(Radiated)
DATE TESTED: JUNE 29 – JULY 7, 2015

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2009 for FCC.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☒ Chamber A(IC: 2324B-1)	☐ Chamber D(IC: 2324B-4)
☒ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 2324B-5)
☒ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 2324B-6)
	☐ Chamber G(IC: 2324B-7)
	☐ Chamber H(IC: 2324B-8)

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 18000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE PHONE + BLUETOOTH and WLAN 2.4GHz b/g/n

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	15.2	33.11
2412 - 2462	802.11g	13.4	21.88
2412 - 2462	802.11n HT20	11.5	14.13

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of 1.28 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

Based on the baseline scan, the worst-case data rates were:

802.11b mode: 1 Mbps

802.11g mode: 6 Mbps

802.11n HT20mode: MCS0

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	ETA810EBE	N/A	N/A
Earphone	Samsung	N/A	N/A	N/A

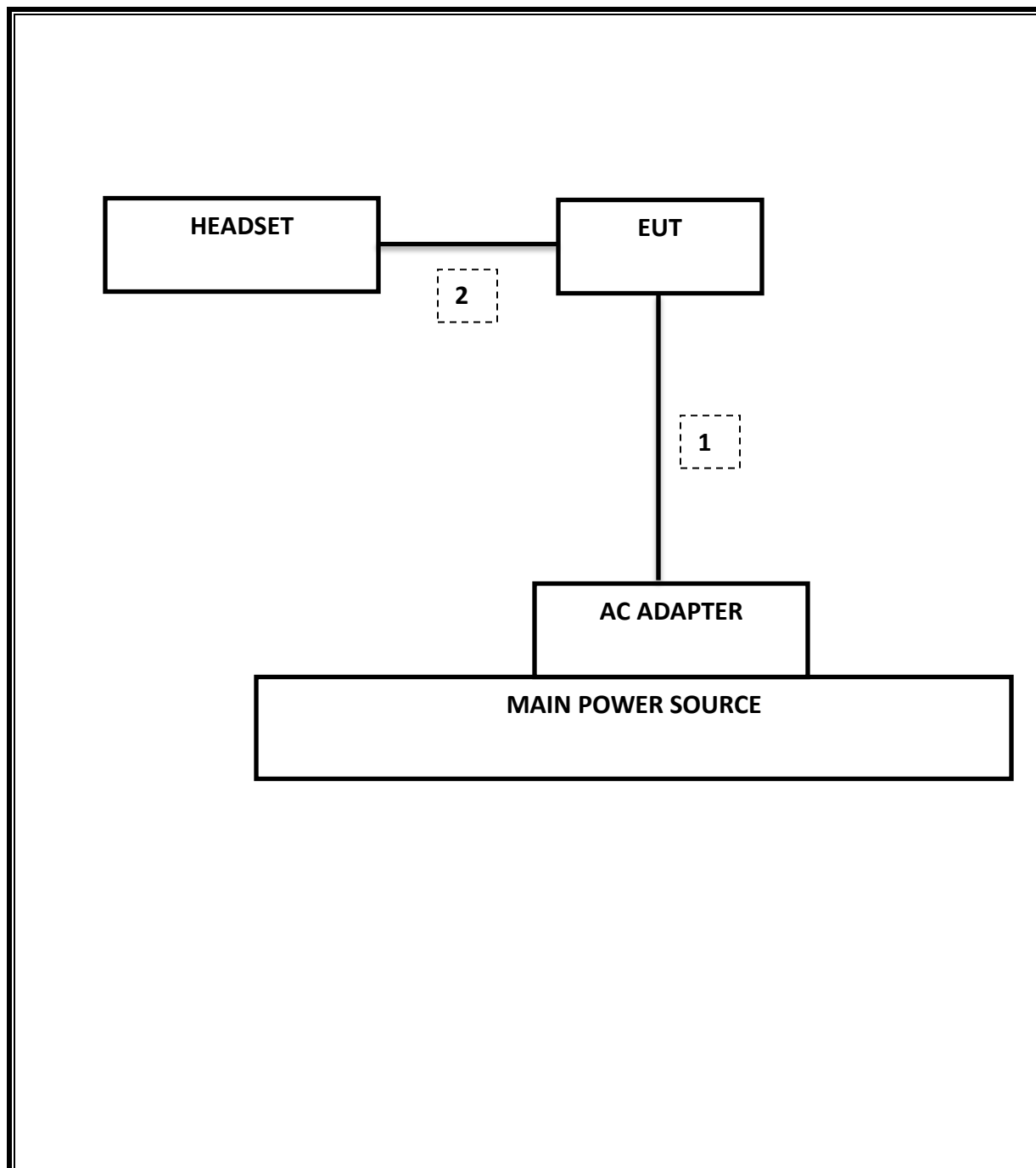
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1m	N/A

TEST SETUP

The EUT is a stand-alone unit during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
Spectrum Analyzer, 9KHz-40GHz	HP	8564E	C00986	04/01/16
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/13/15
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/18/15
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
Antenna, Horn, 1-18 GHz	ETS	3117	C01022	02/21/16
Antenna, Horn, 18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/15
Antenna, Horn, 26-40 GHz	ARA	MWH-2640	C00891	06/28/16
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	03/06/16
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	F00351	06/27/16
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
RF Preamplifier, 1GHz - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/15
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/16
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/16
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/16
Radiated Software	UL	UL EMC	Ver 9.5, July 22, 2014	
Conducted Software	UL	UL EMC	Ver 9.5, May 17 2012	
CLT Software	UL	UL RF	Ver 1.0, Feb 2 2015	
Antenna Port Software	UL	UL RF	Ver 2.1.1.1, Jan 20 2015	

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r03: Measurement Procedure AVGPM-G is used for power and AVGPS-3 is used for power spectral density.

Unwanted emissions within Restricted Bands are measured using traditional radiated procedures.

Band edge emissions within Restricted Bands are measured using RMS with duty cycle factor offset method.

8. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-247 5.2.1	Occupied Band width (6dB)	>500KHz	Conducted	Pass	9.62 MHz
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-29.47 dBm
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass	15.2 dBm
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass	-7.19 dBm
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass	46.05 dBuV
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass	53.77 dBuV/m

9. ANTENNA PORT TEST RESULTS

9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

Reference to KDB 558074 D01 DTS Meas Guidance v03r03: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

9.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	9.62	0.5
Mid	2437	10.08	0.5
High	2462	9.63	0.5
Worst		9.62	

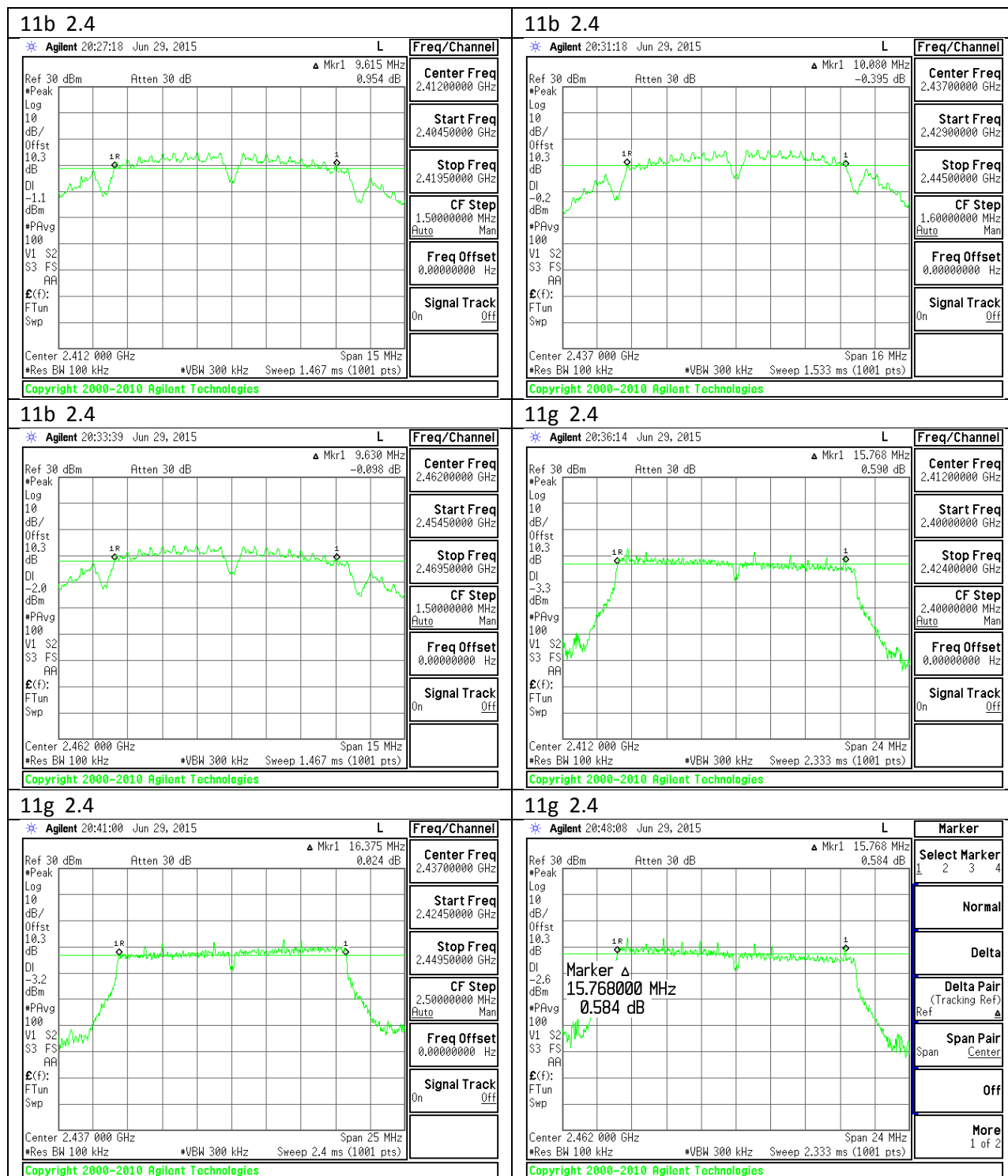
9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

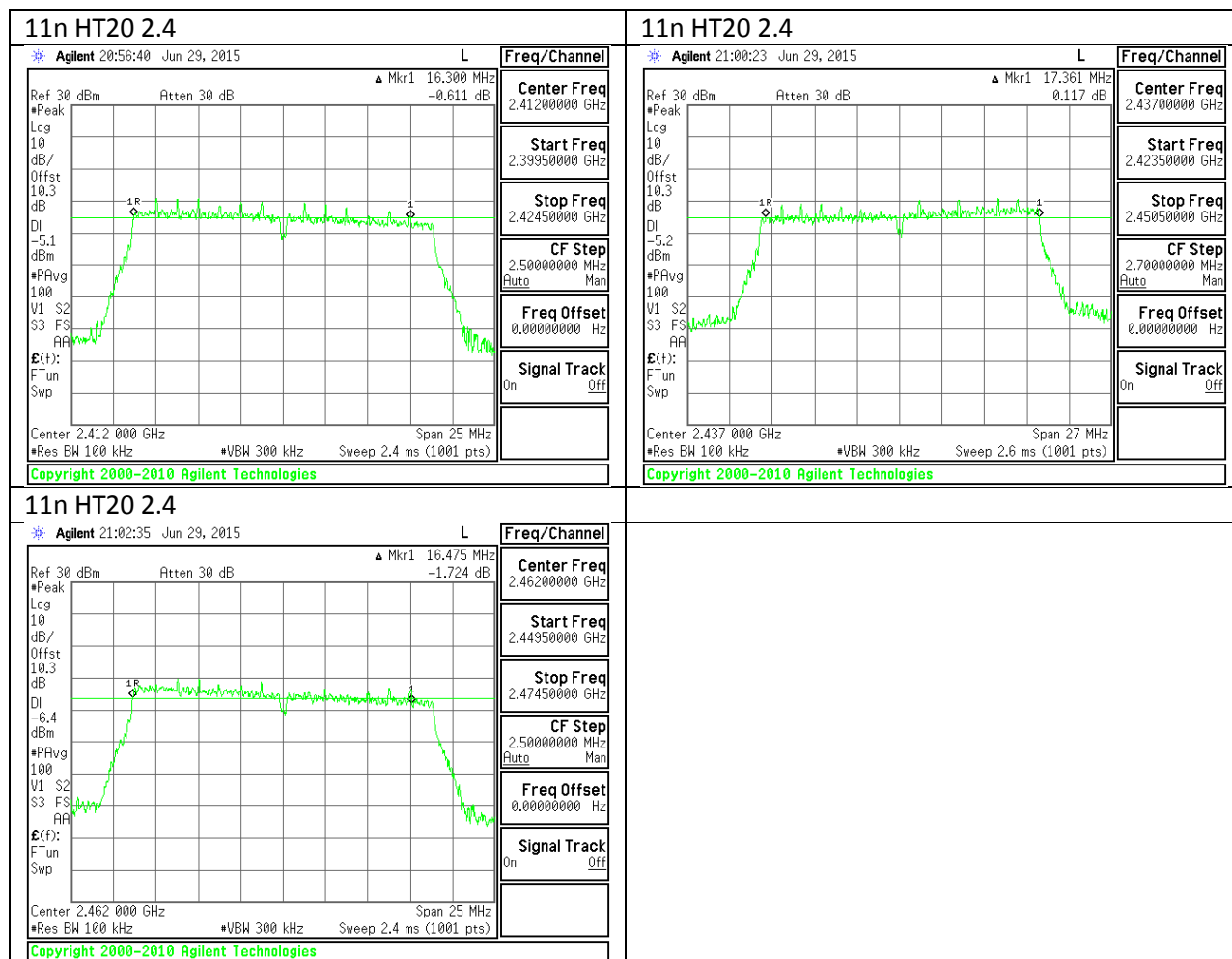
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.77	0.5
Mid	2437	16.38	0.5
High	2462	15.77	0.5
Worst		15.77	

9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.30	0.5
Mid	2437	17.36	0.5
High	2462	16.48	0.5
Worst		16.30	

9.1.4. 6 dB BANDWIDTH MID CH PLOTS





9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	13.56
Mid	2437	13.51
High	2462	13.63
Worst		13.63

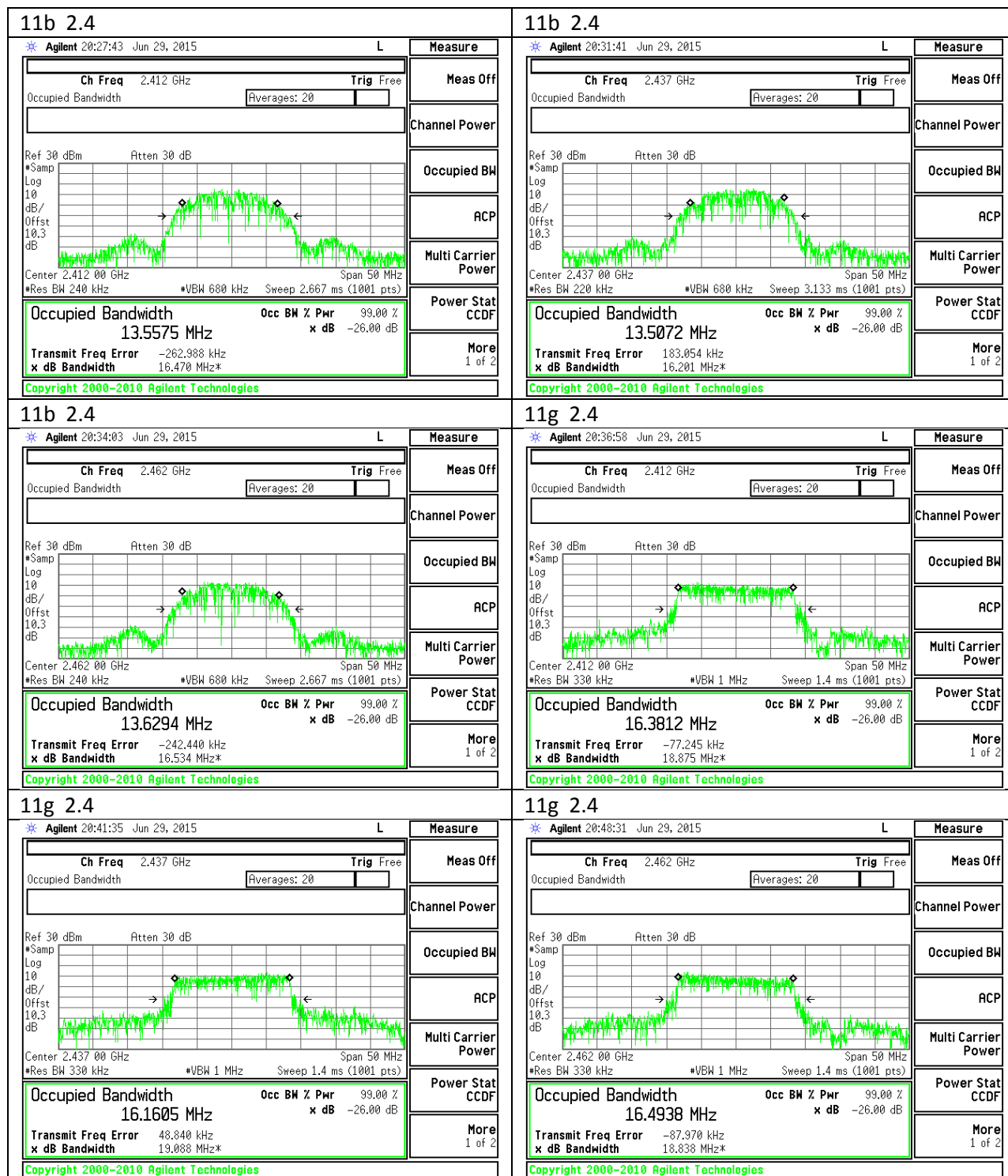
9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

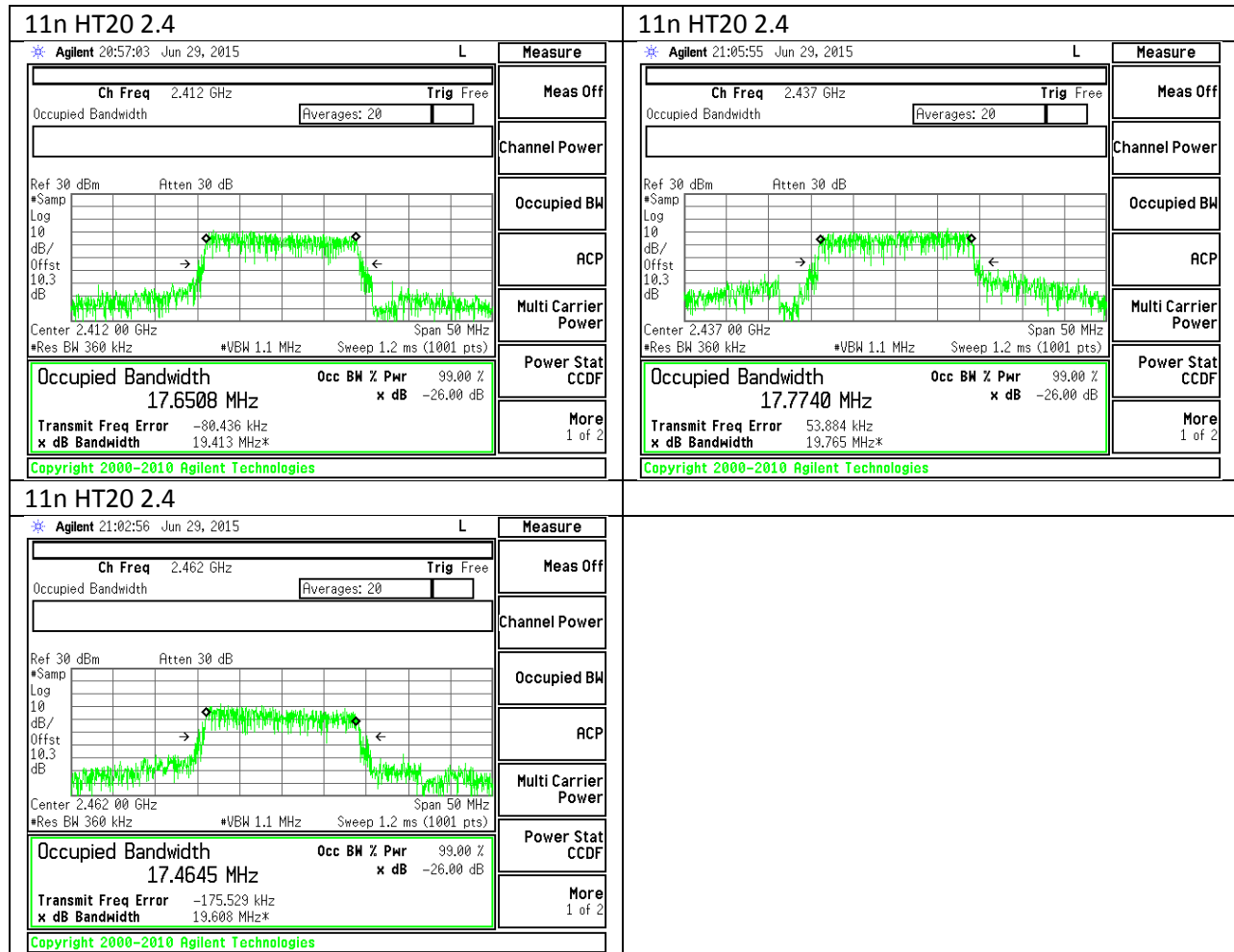
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.38
Mid	2437	16.16
High	2462	16.49
Worst		16.49

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.65
Mid	2437	17.77
High	2462	17.46
Worst		17.77

9.2.4. 99% BANDWIDTH MID CH PLOTS





9.3. OUTPUT POWER

LIMITS

FCC §15.247

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.28	30.00	30	36	30.00
Mid	2437	1.28	30.00	30	36	30.00
High	2462	1.28	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	15.20	15.20	30.00	-14.80
Mid	2437	15.10	15.10	30.00	-14.90
High	2462	14.50	14.50	30.00	-15.50
Worst			15.20		

9.3.2. 802.11g MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.28	30.00	30	36	30.00
Mid	2437	1.28	30.00	30	36	30.00
High	2462	1.28	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	13.40	13.40	30.00	-16.60
Mid	2437	13.00	13.00	30.00	-17.00
High	2462	13.40	13.40	30.00	-16.60
Worst			13.40		

9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.28	30.00	30	36	30.00
Mid	2437	1.28	30.00	30	36	30.00
High	2462	1.28	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	11.50	11.50	30.00	-18.50
Mid	2437	11.40	11.40	30.00	-18.60
High	2462	11.50	11.50	30.00	-18.50
Worst			11.50		

9.4. PSD

LIMITS

FCC §15.247

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

9.4.1. 802.11b MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-7.81	8.0	-15.8
Mid	2437	-7.19	8.0	-15.2
High	2462	-8.92	8.0	-16.9

9.4.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

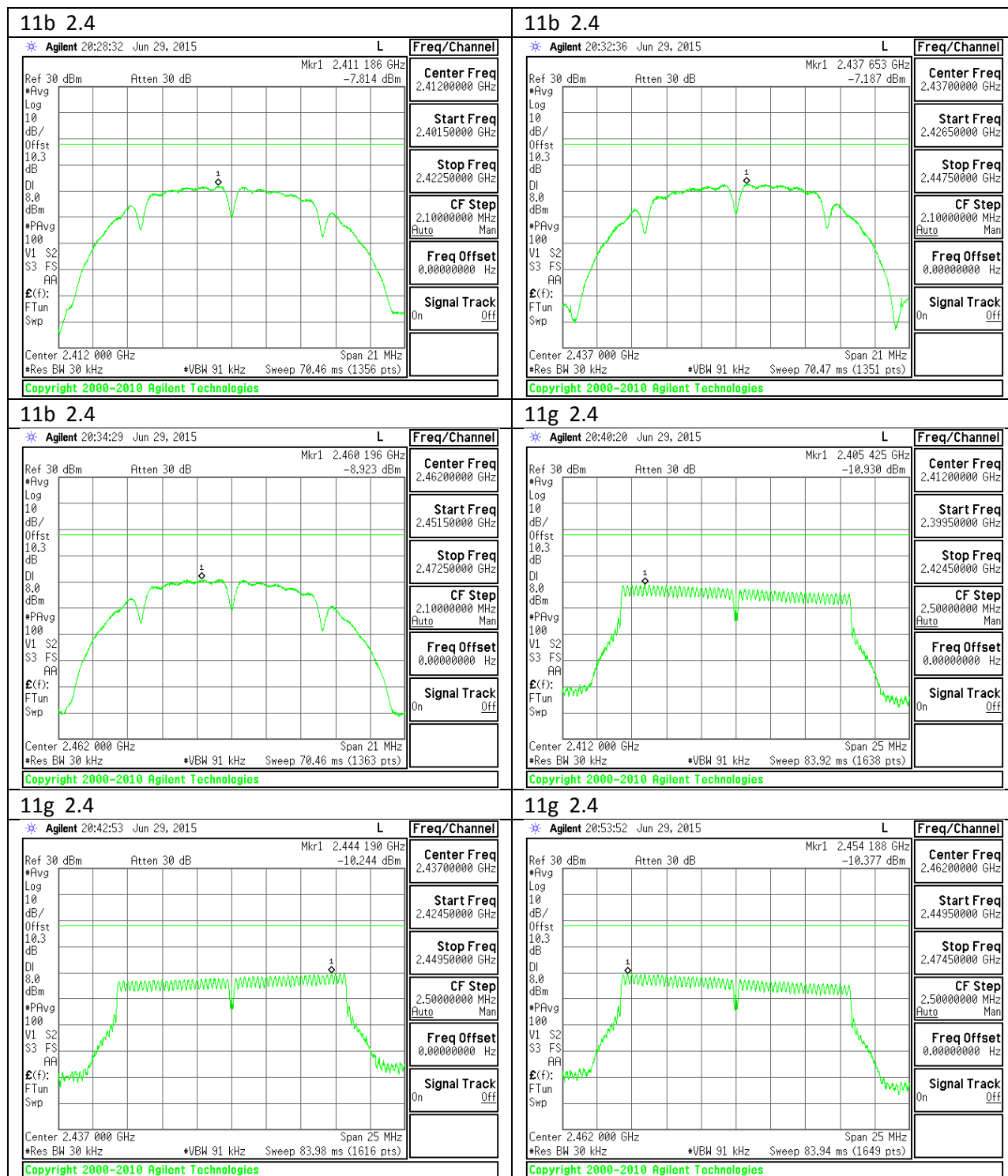
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-10.93	8.0	-18.9
Mid	2437	-10.24	8.0	-18.2
High	2462	-10.38	8.0	-18.4

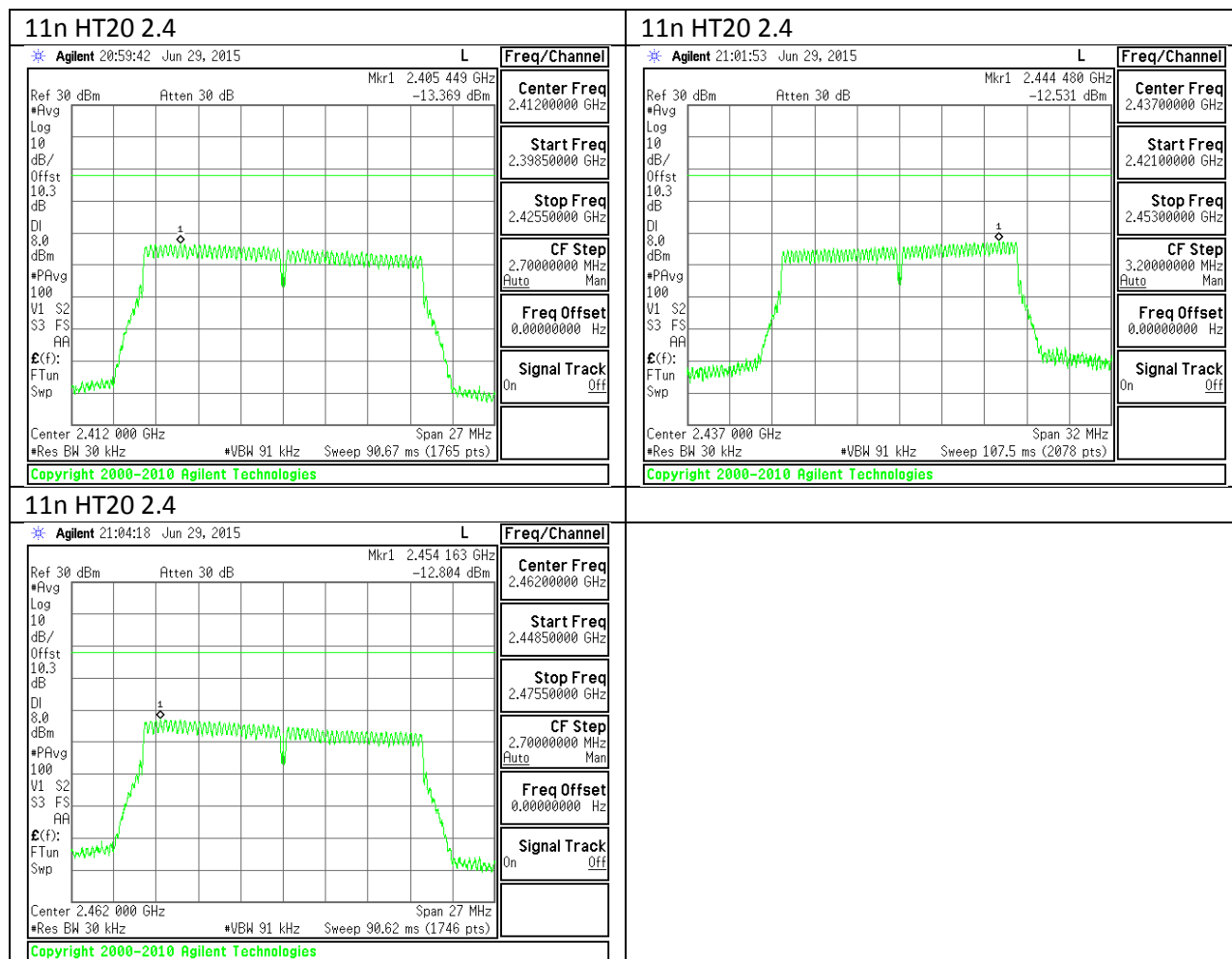
9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-13.37	8.0	-21.4
Mid	2437	-12.53	8.0	-20.5
High	2462	-12.80	8.0	-20.8

9.4.4. PSD Chain 0 MID CH PLOTS





9.5. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

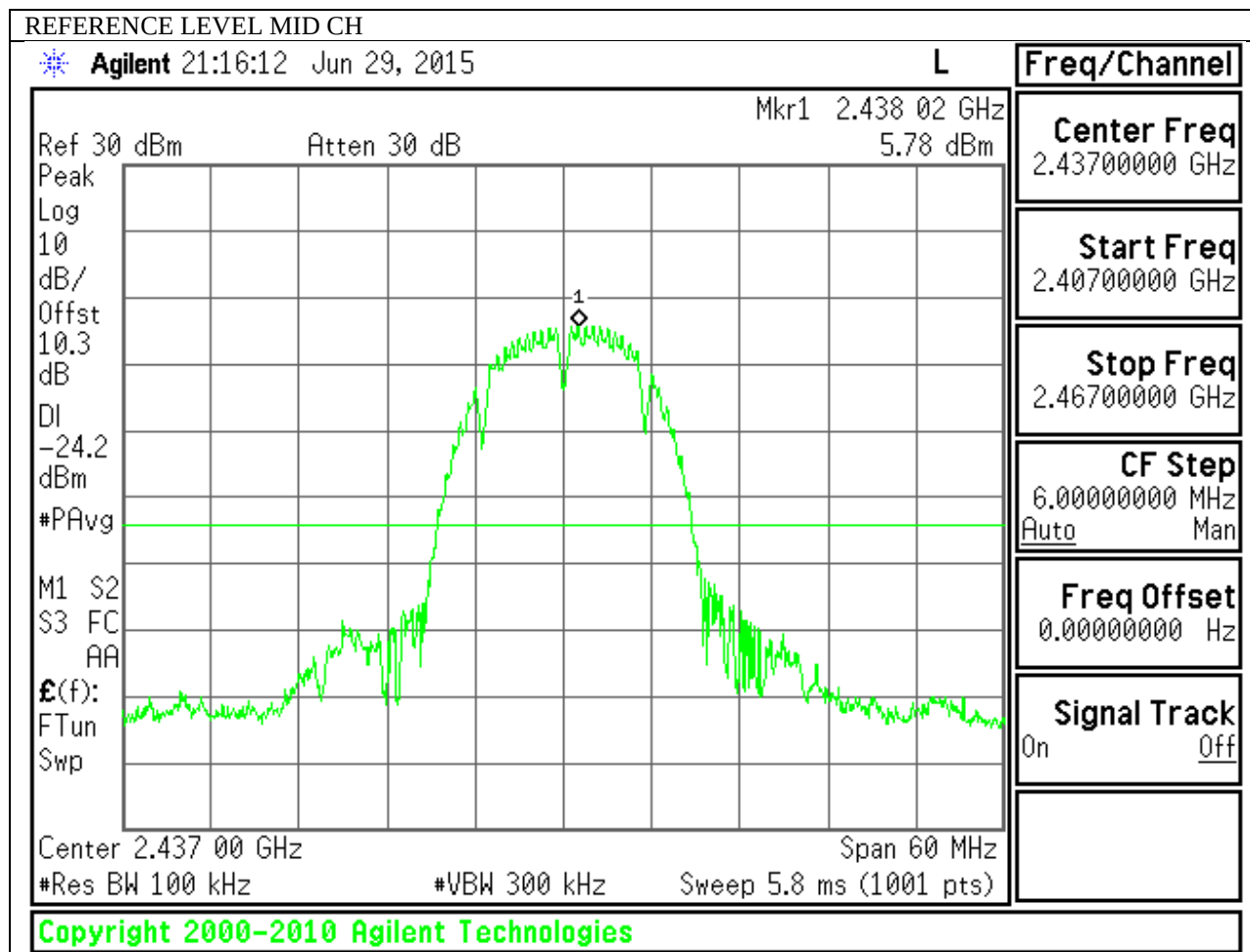
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

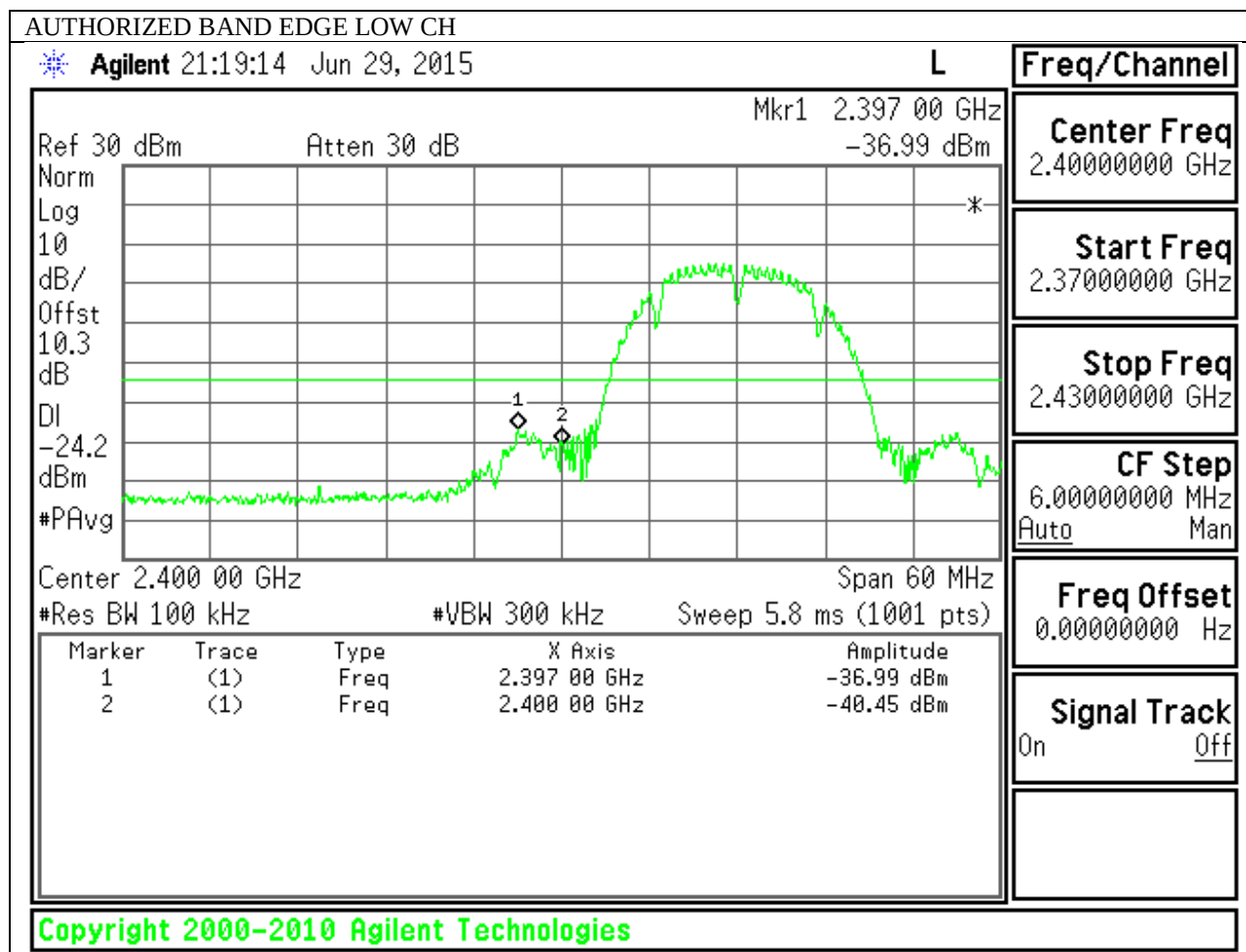
RESULTS

9.5.1. 802.11b MODE IN THE 2.4 GHz BAND

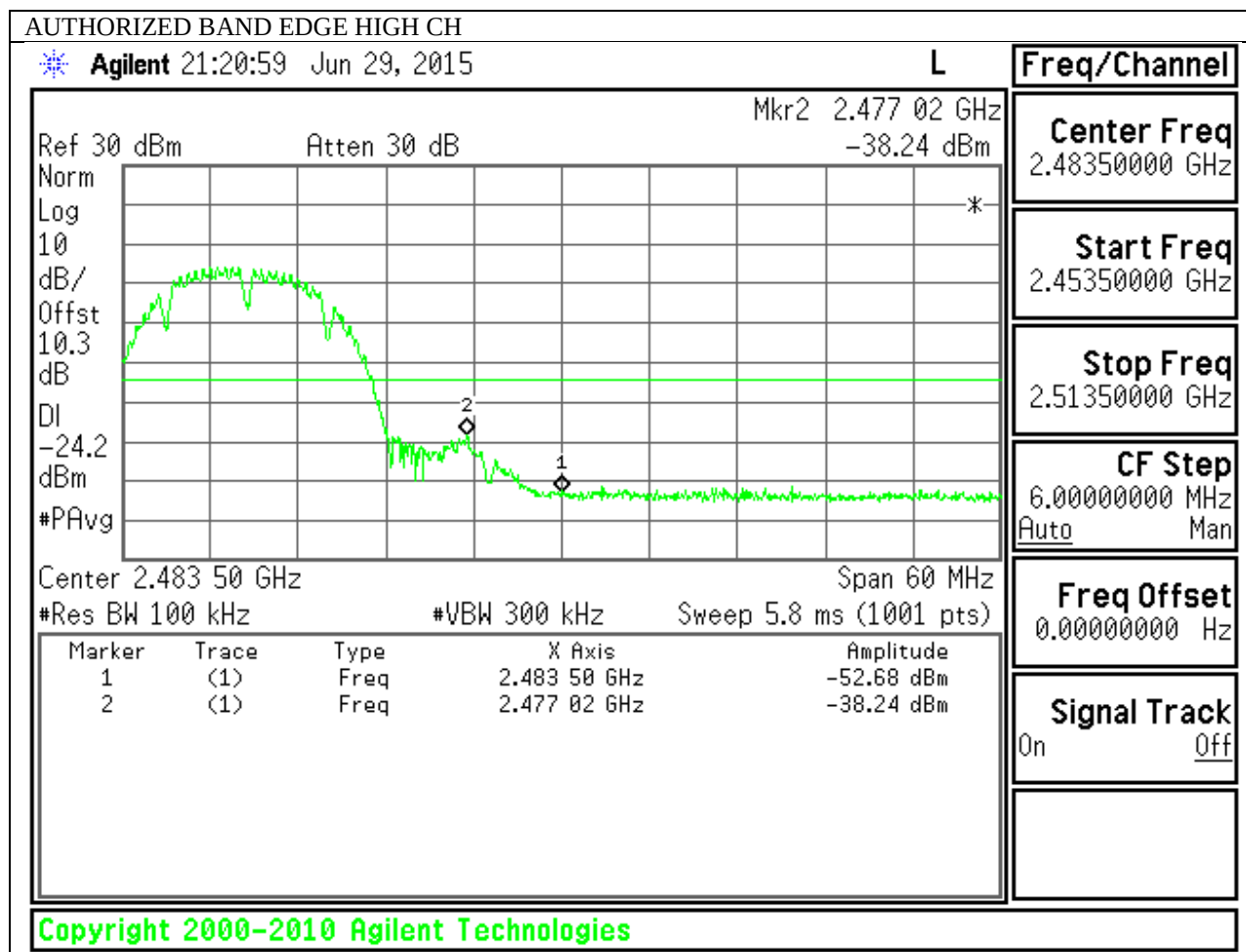
IN-BAND REFERENCE LEVEL



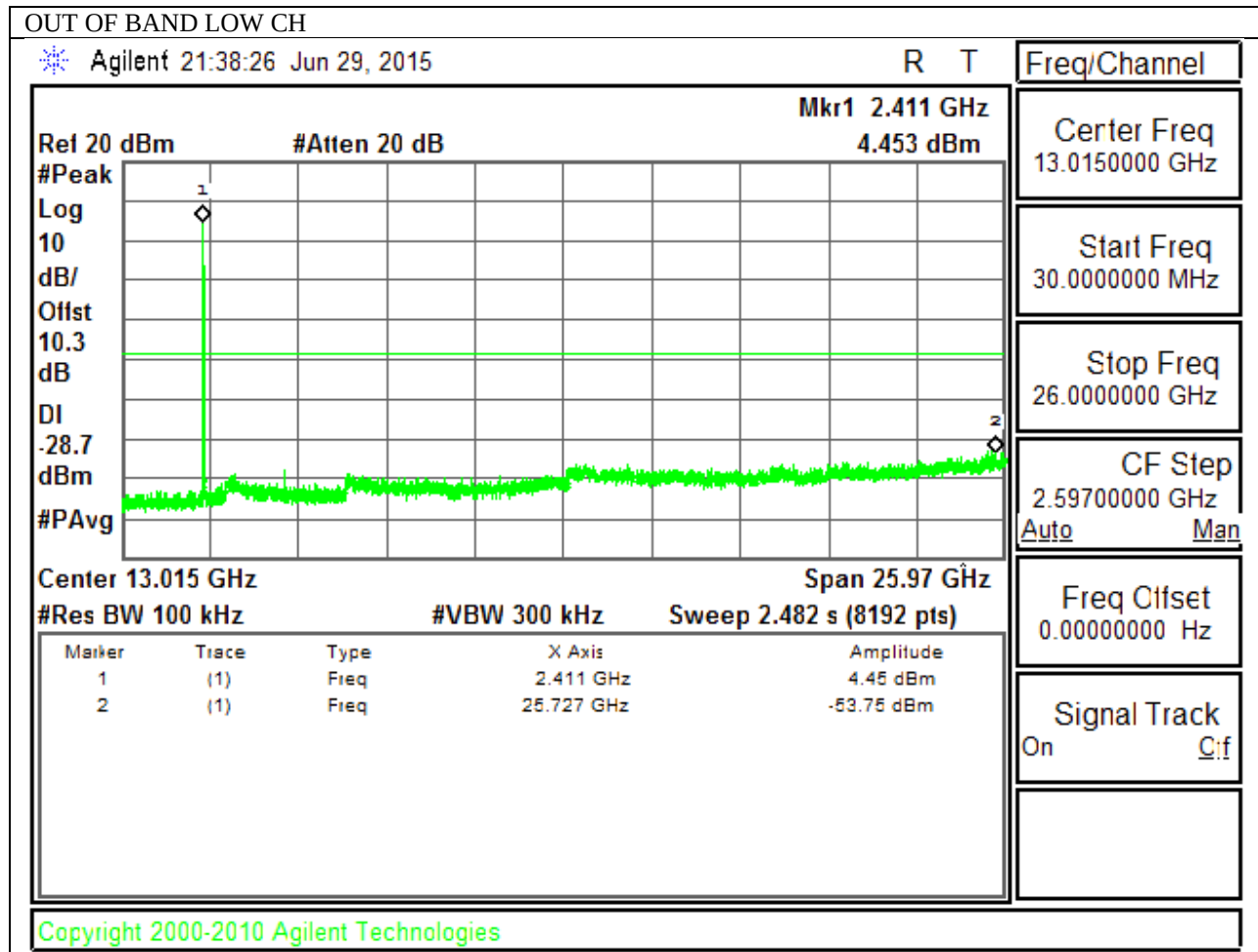
LOW CHANNEL BANDEDGE

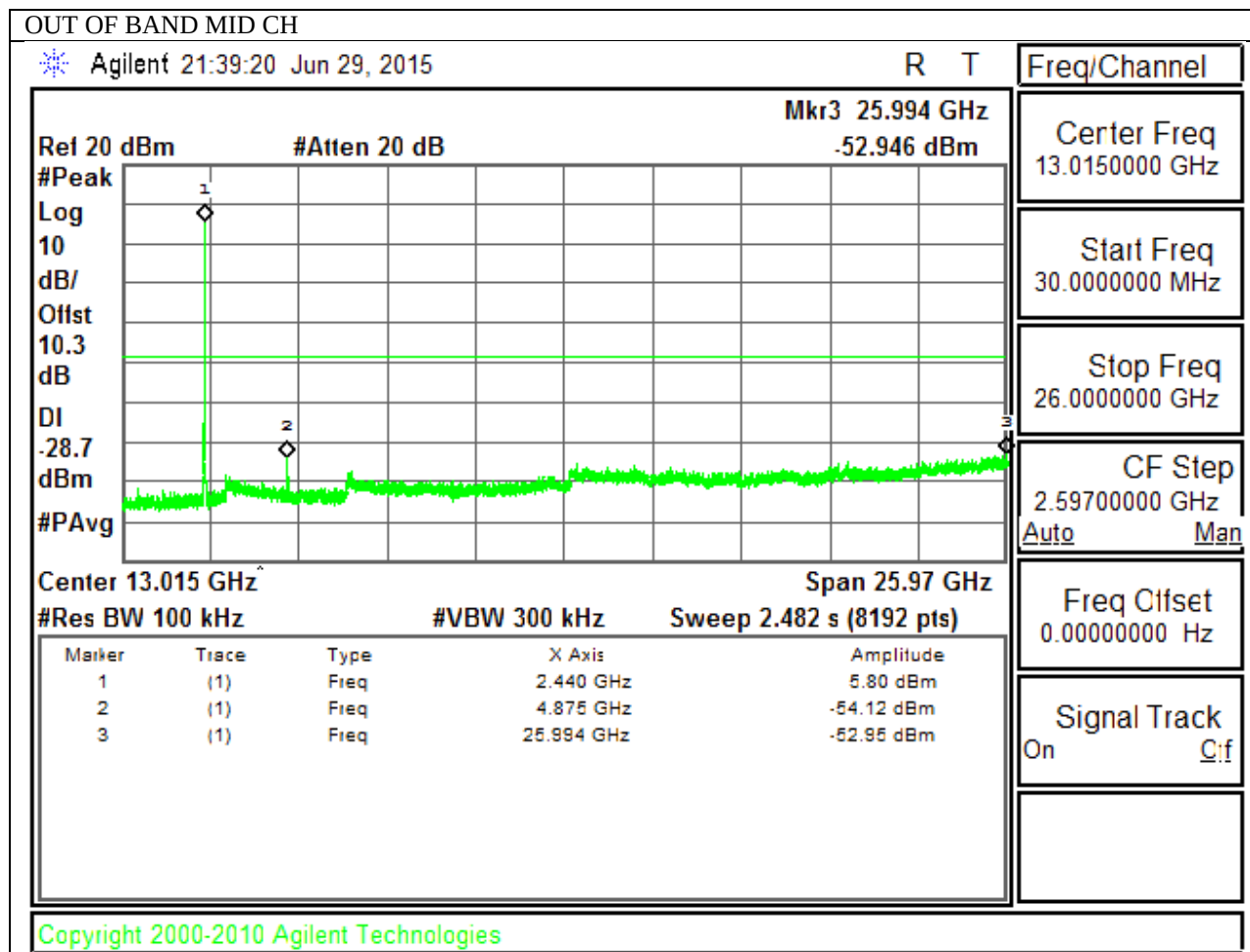


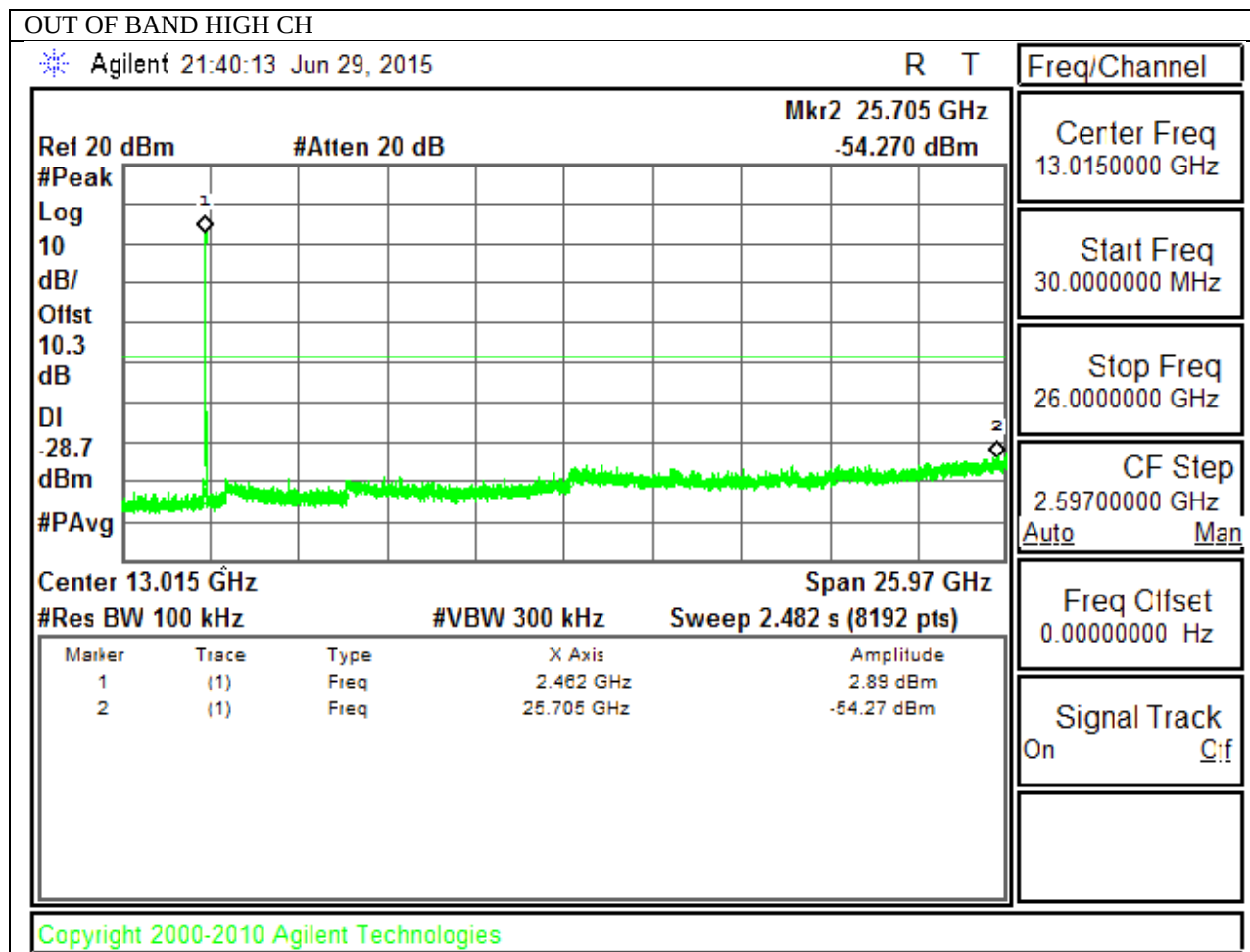
HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS

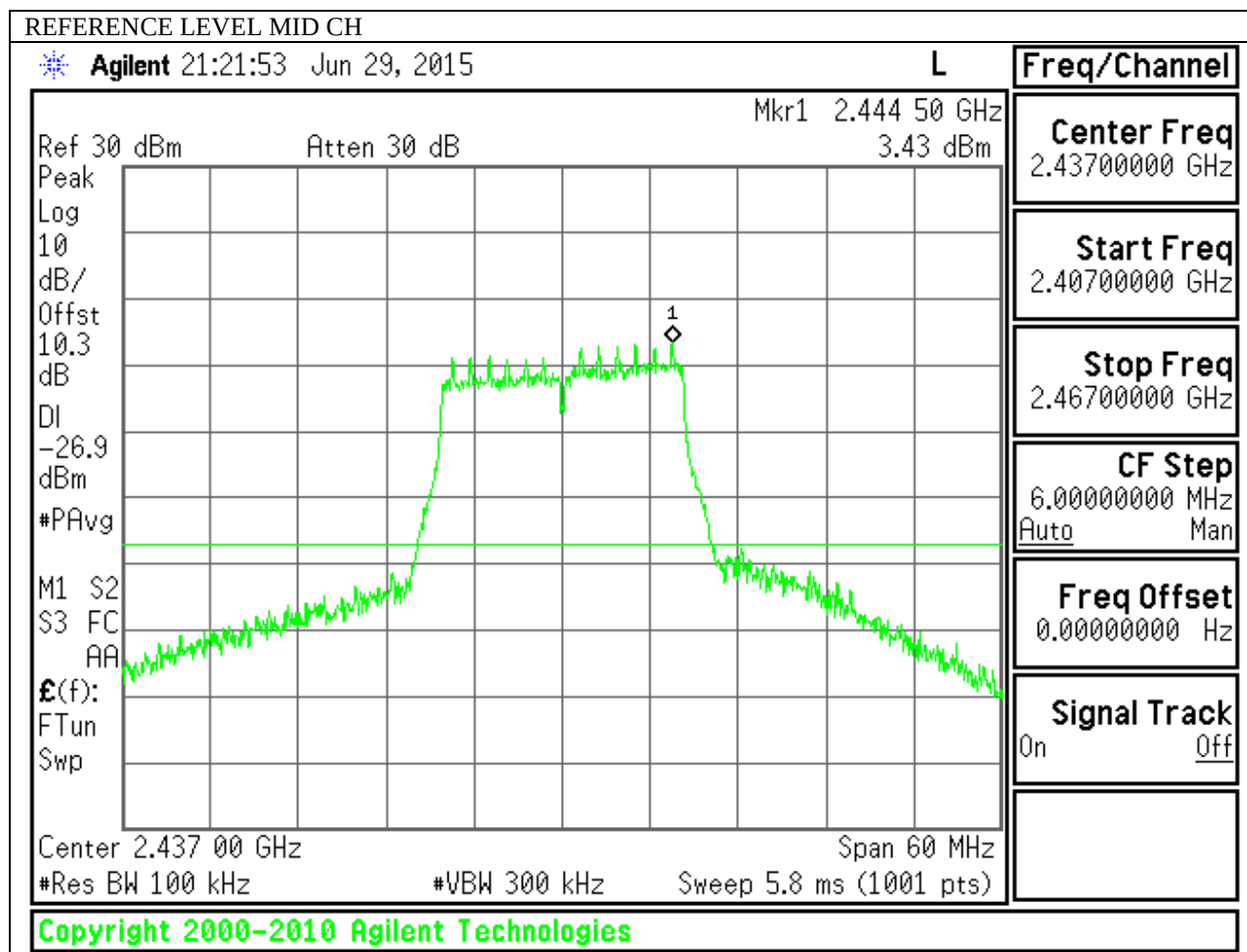




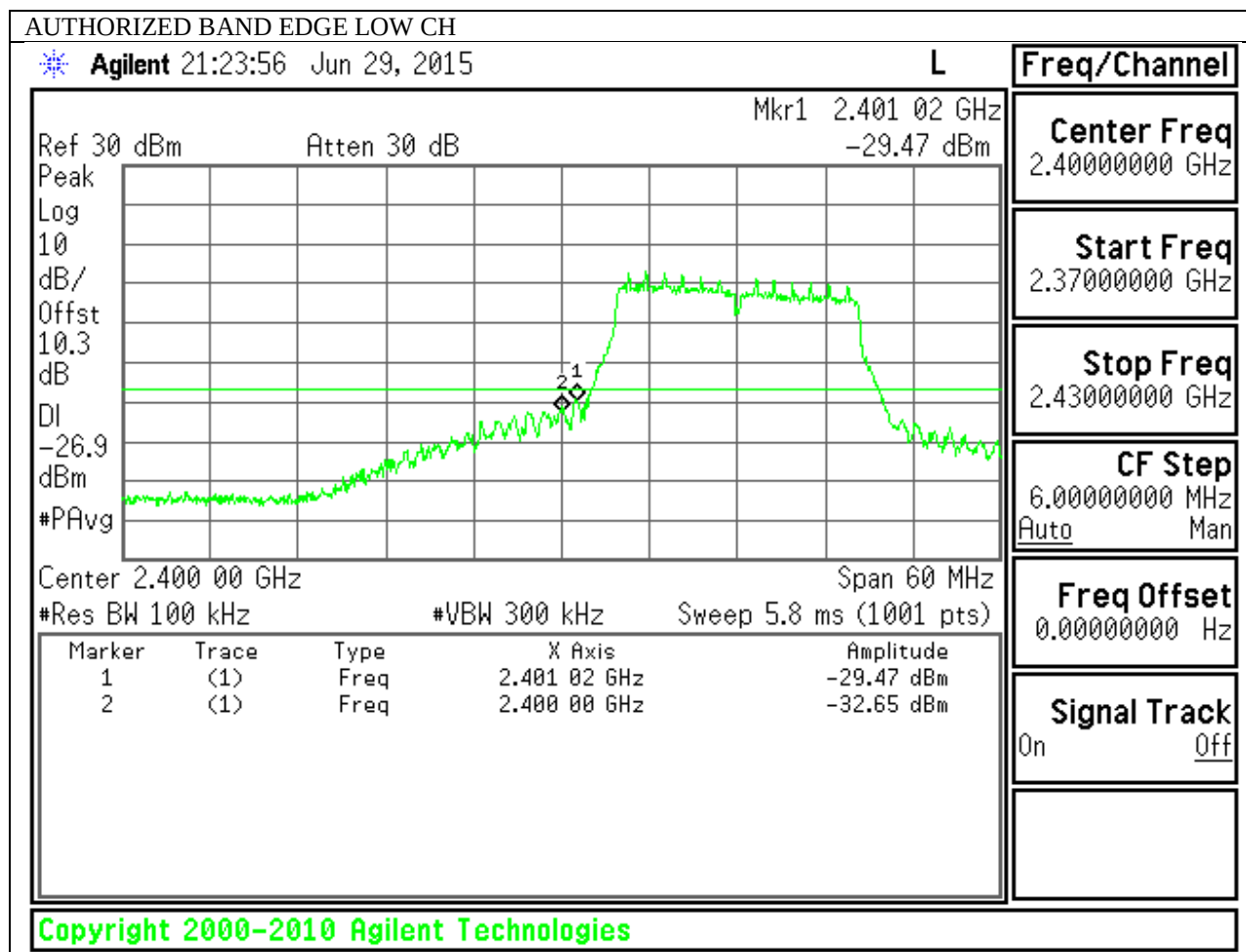


9.5.2. 802.11g MODE IN THE 2.4 GHz BAND

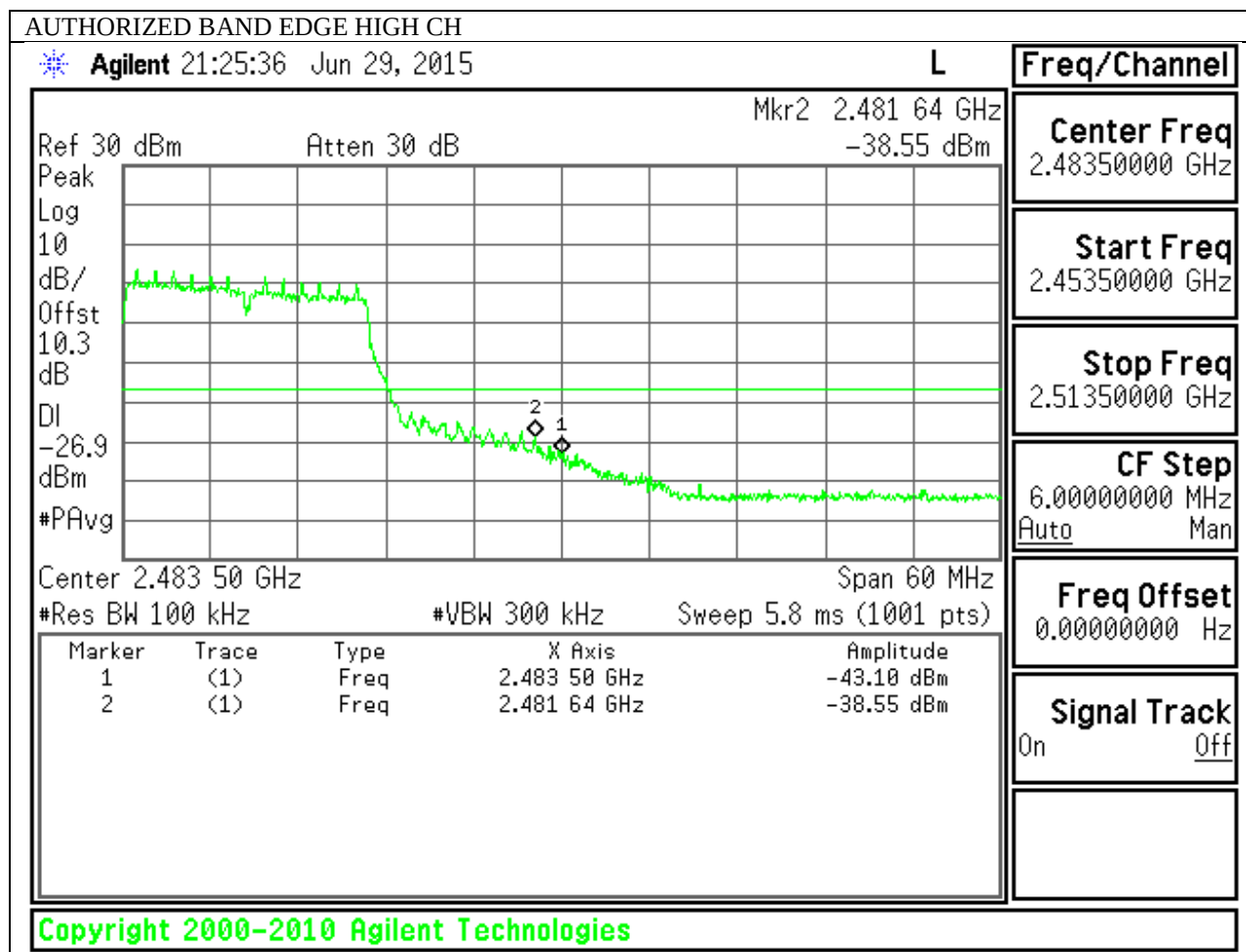
IN-BAND REFERENCE LEVEL



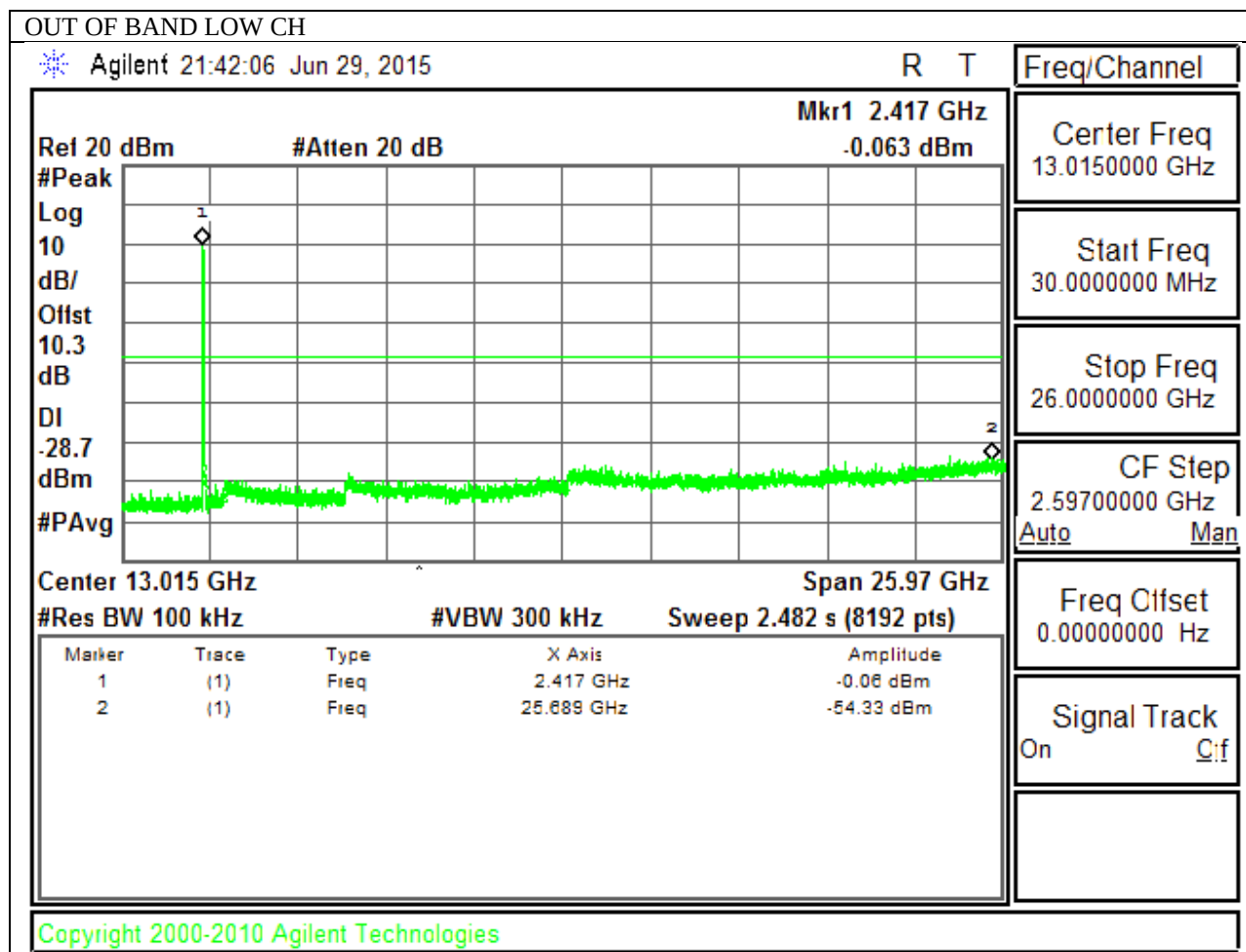
LOW CHANNEL BANDEDGE

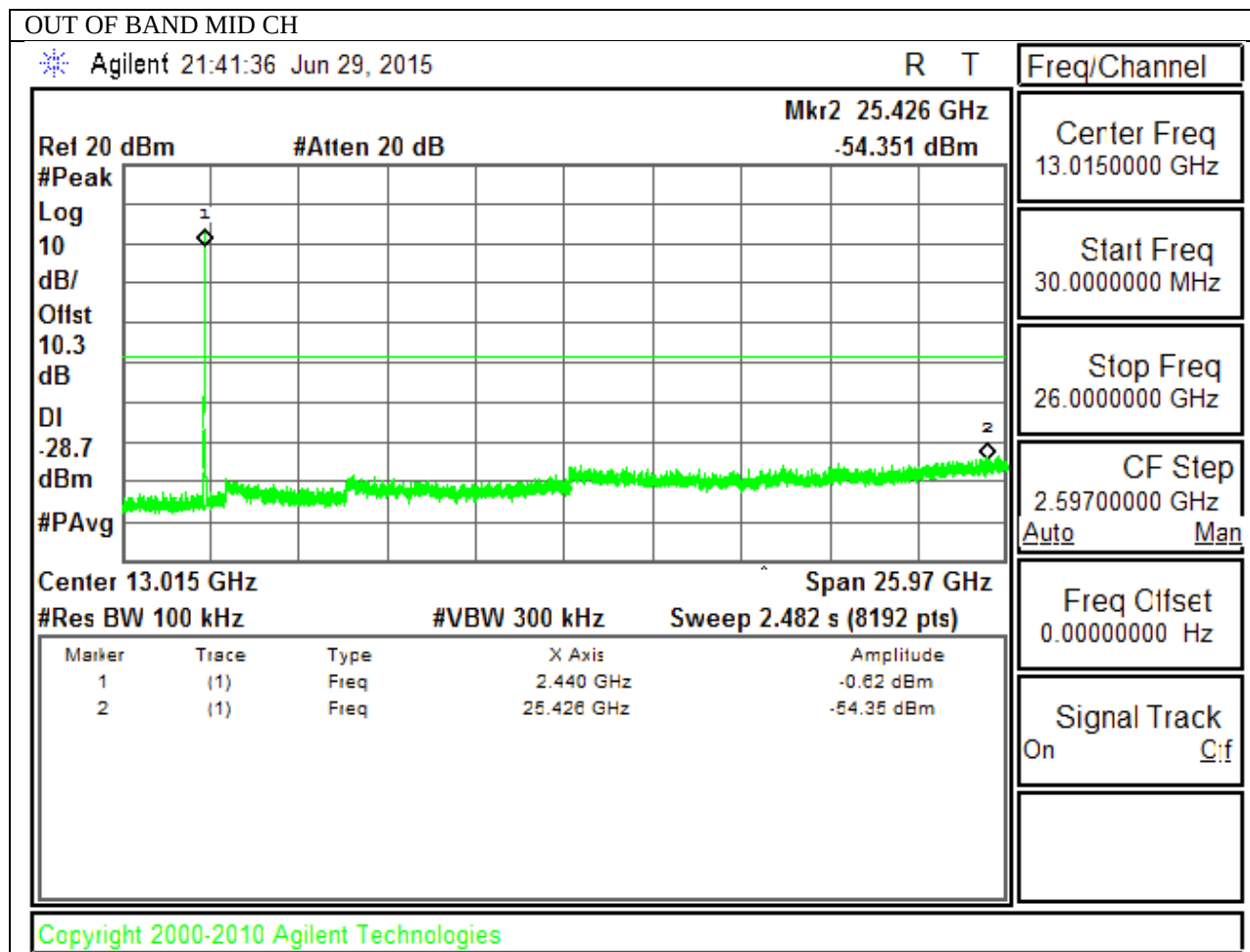


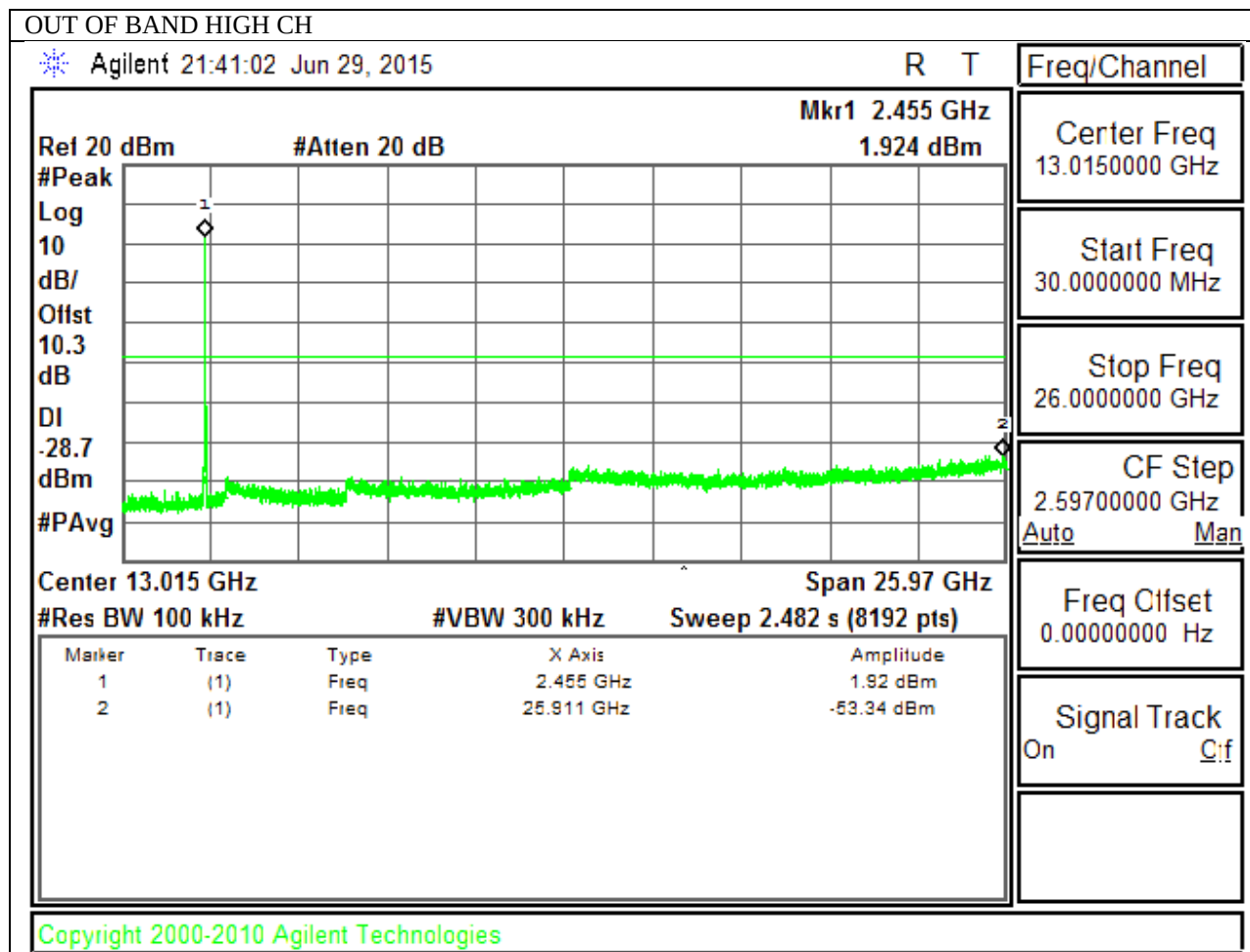
HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS

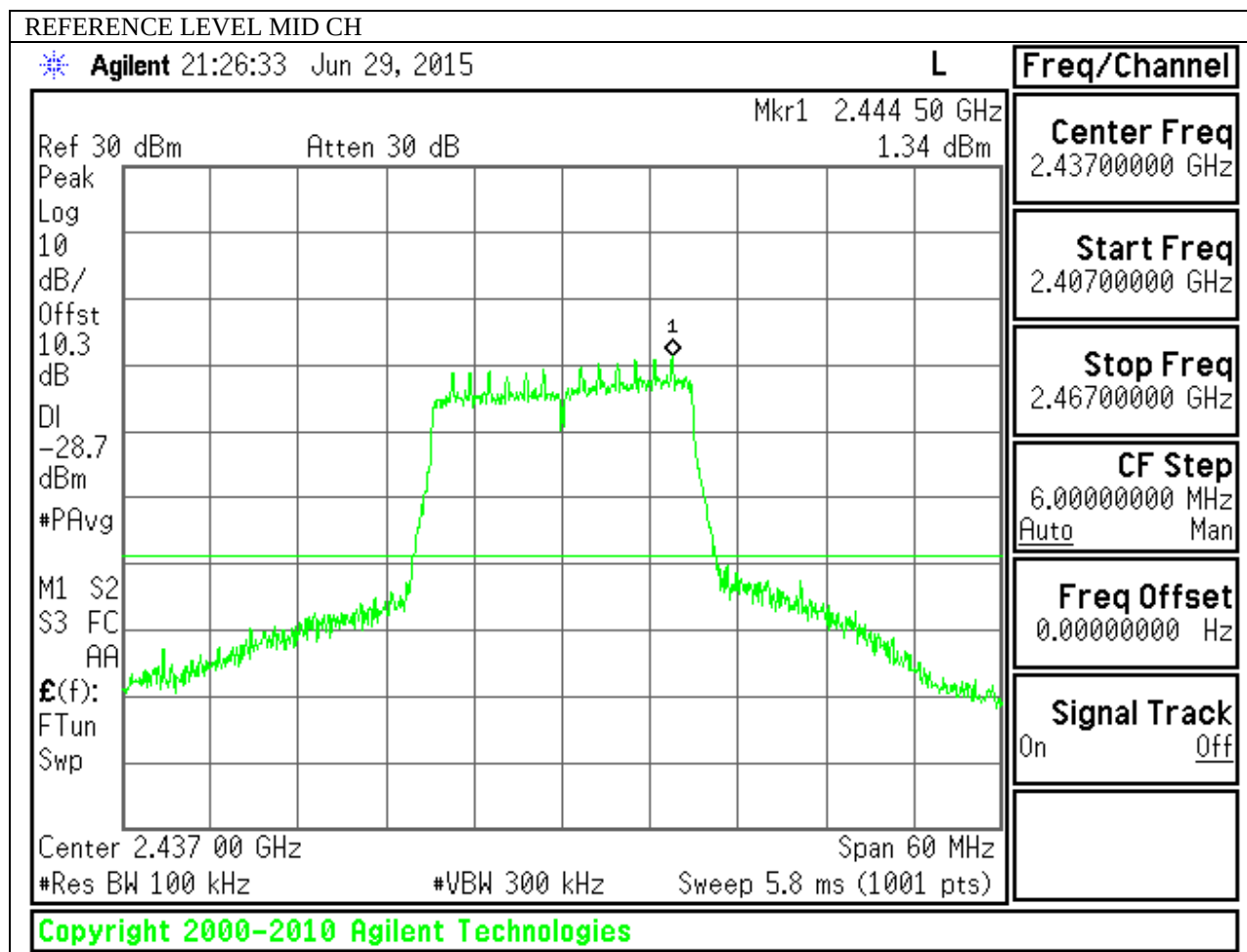




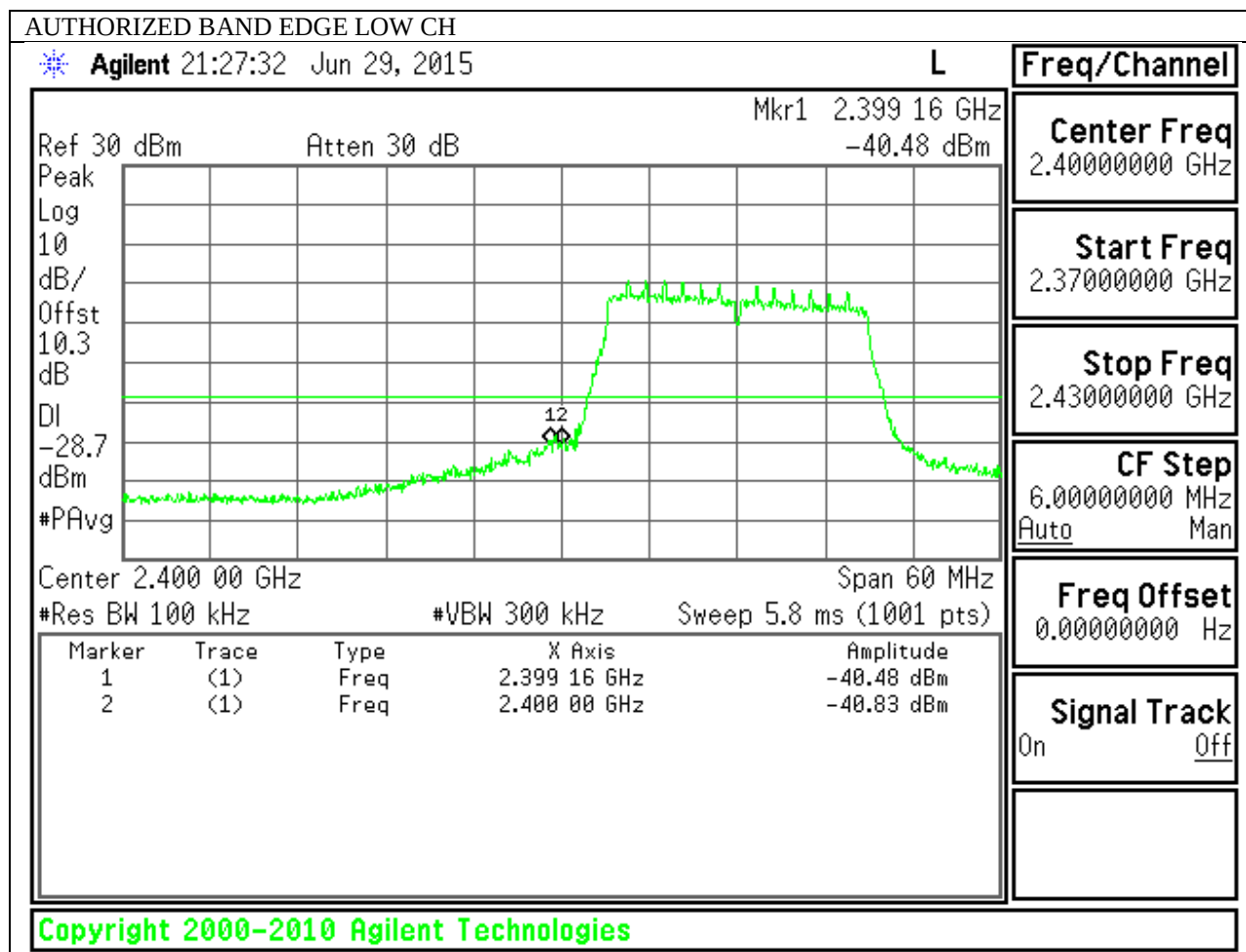


9.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

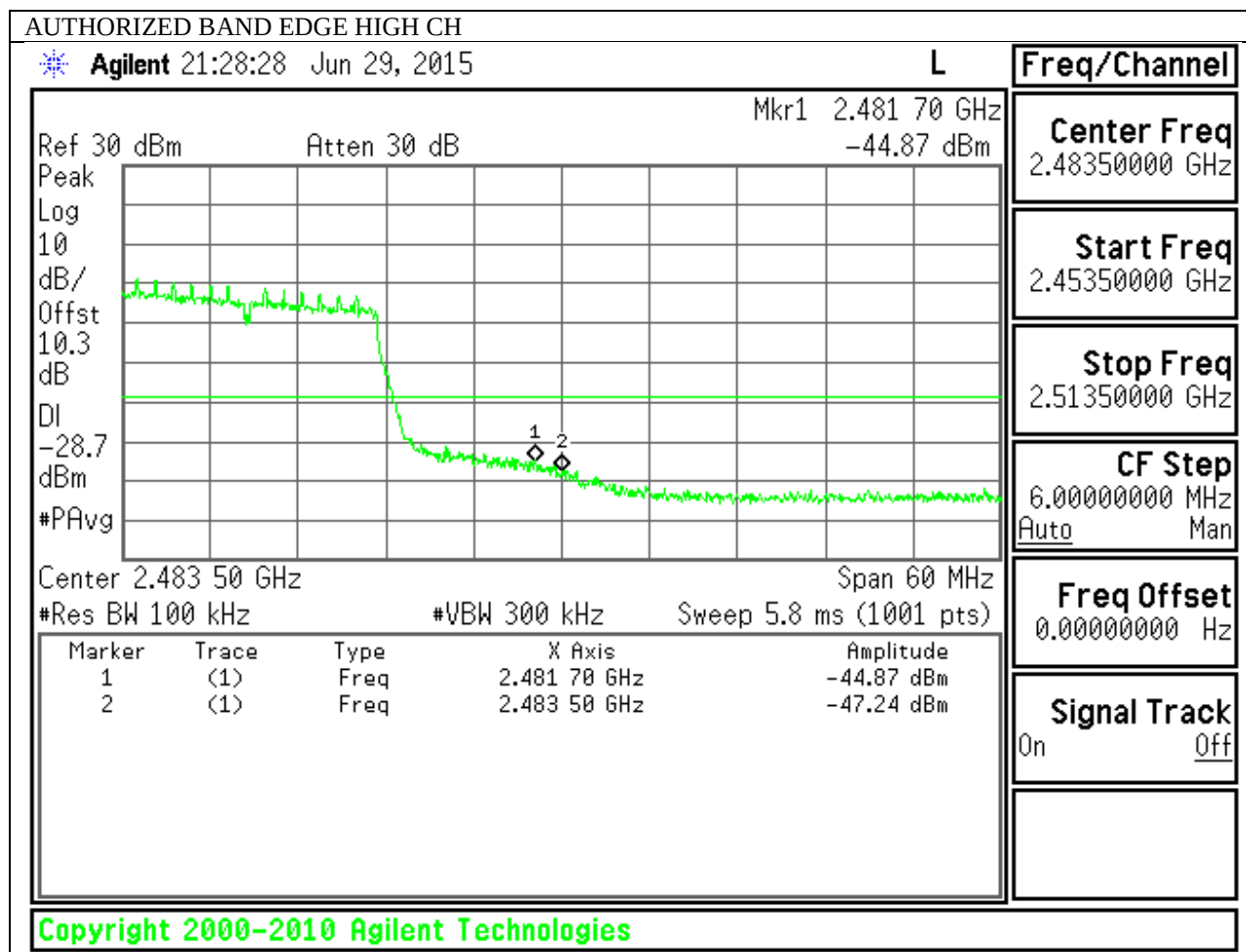
IN-BAND REFERENCE LEVEL



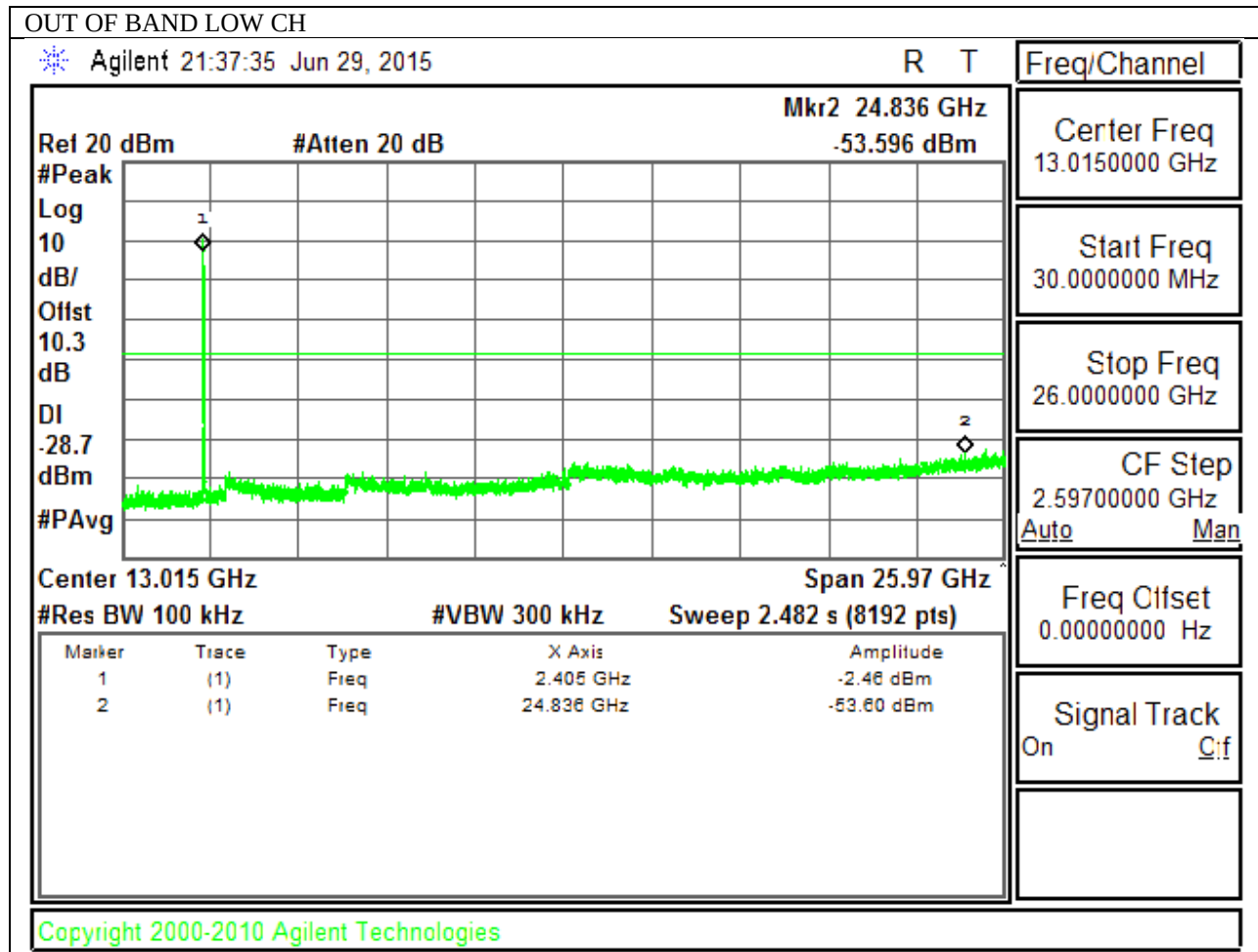
LOW CHANNEL BANDEDGE

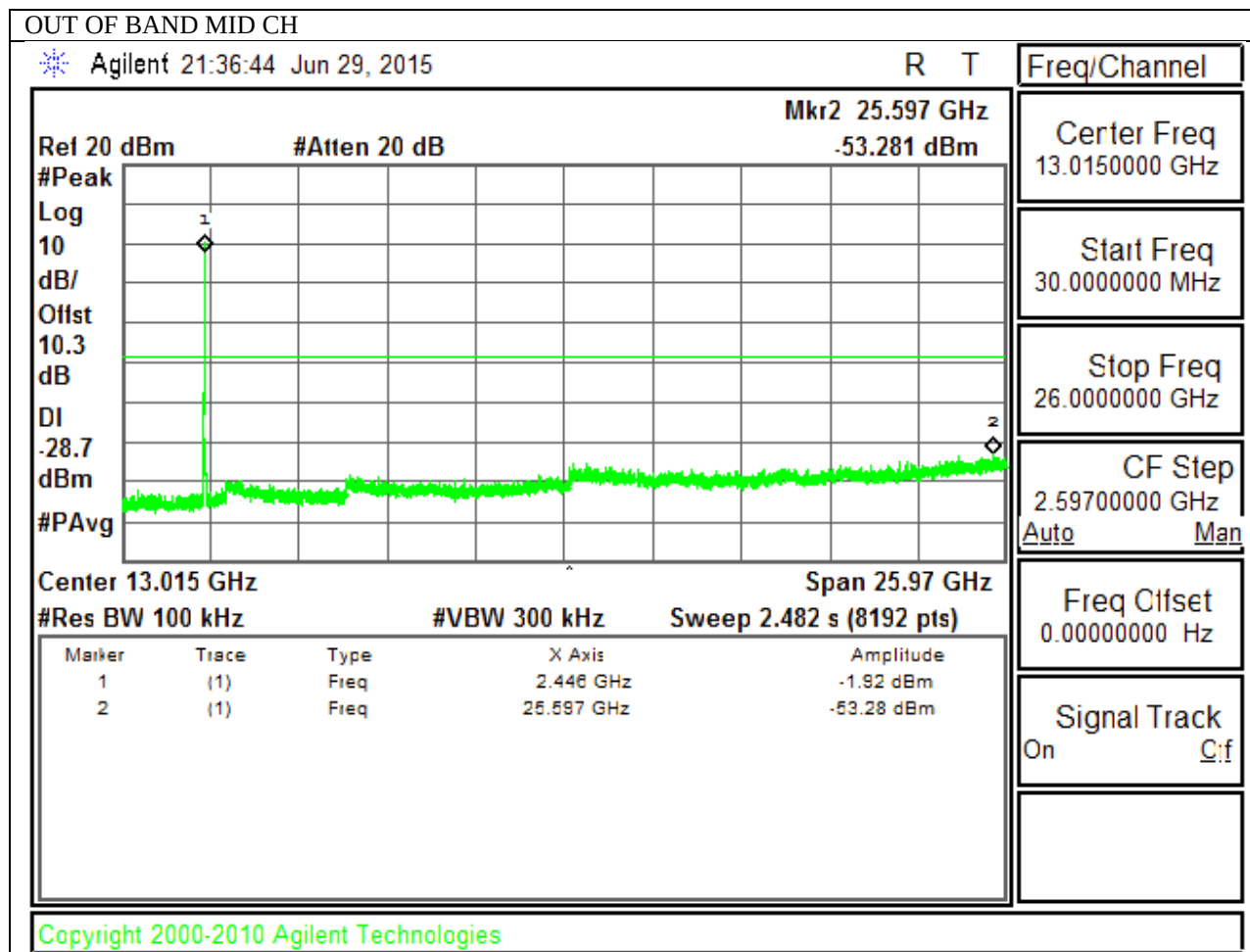


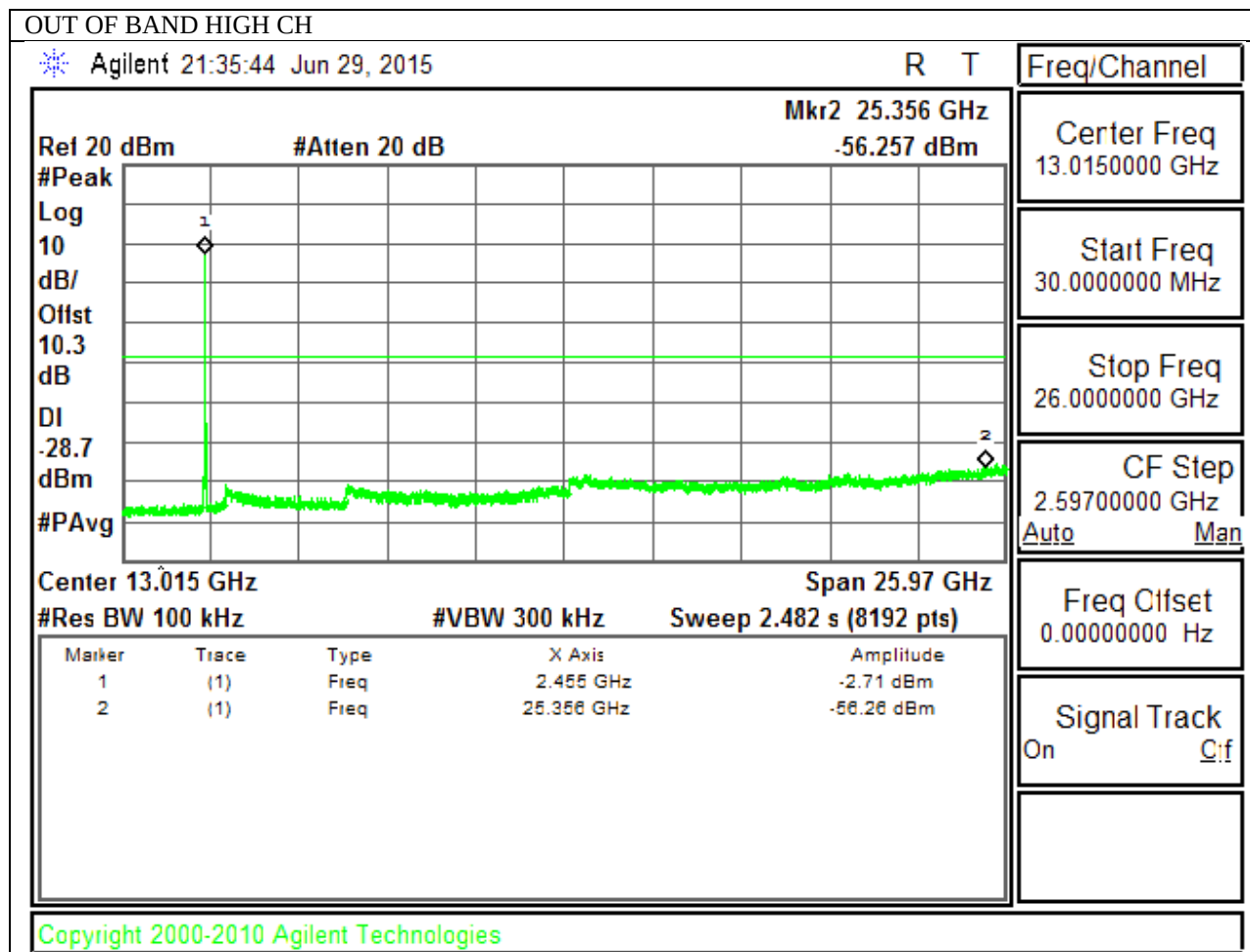
HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS







10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit ($\mu\text{V}/\text{m}$) at 3 m	Field Strength Limit ($\text{dB}\mu\text{V}/\text{m}$) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground. The antenna to EUT distance is 3 meters.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor = $10\log(1/x)$ For this sample B mode = 0dB (duty cycle >98%); G mode = 0.16dB; N mode = 0.19dB.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

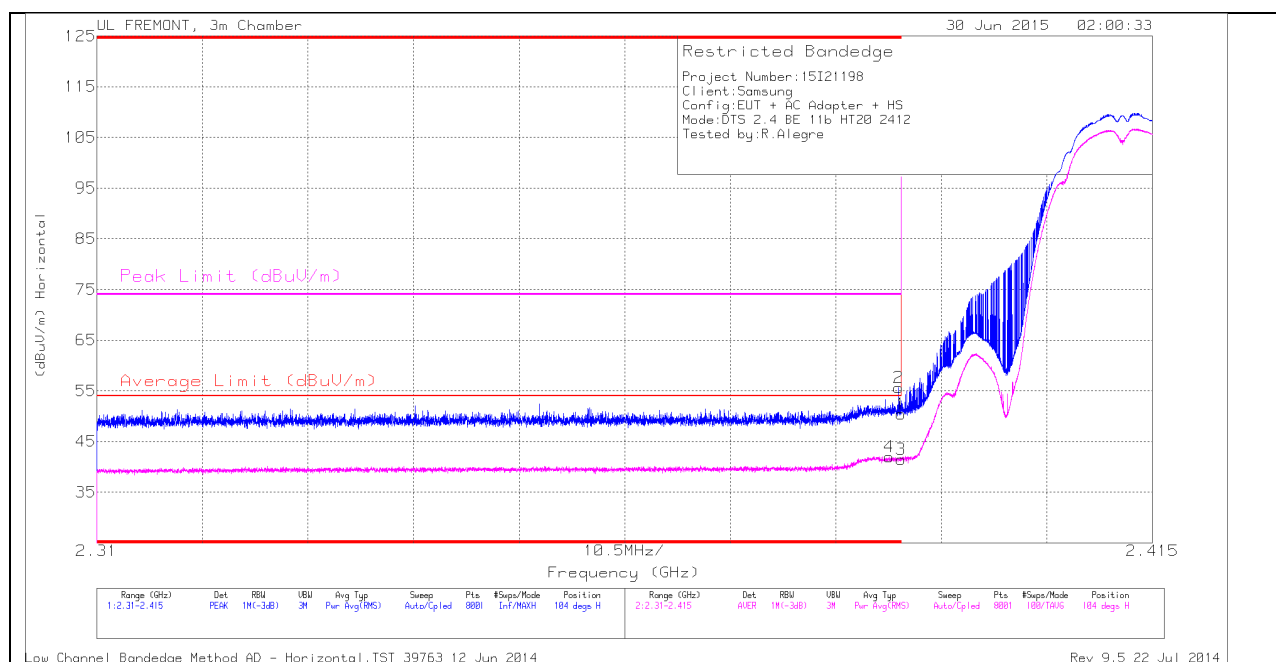
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

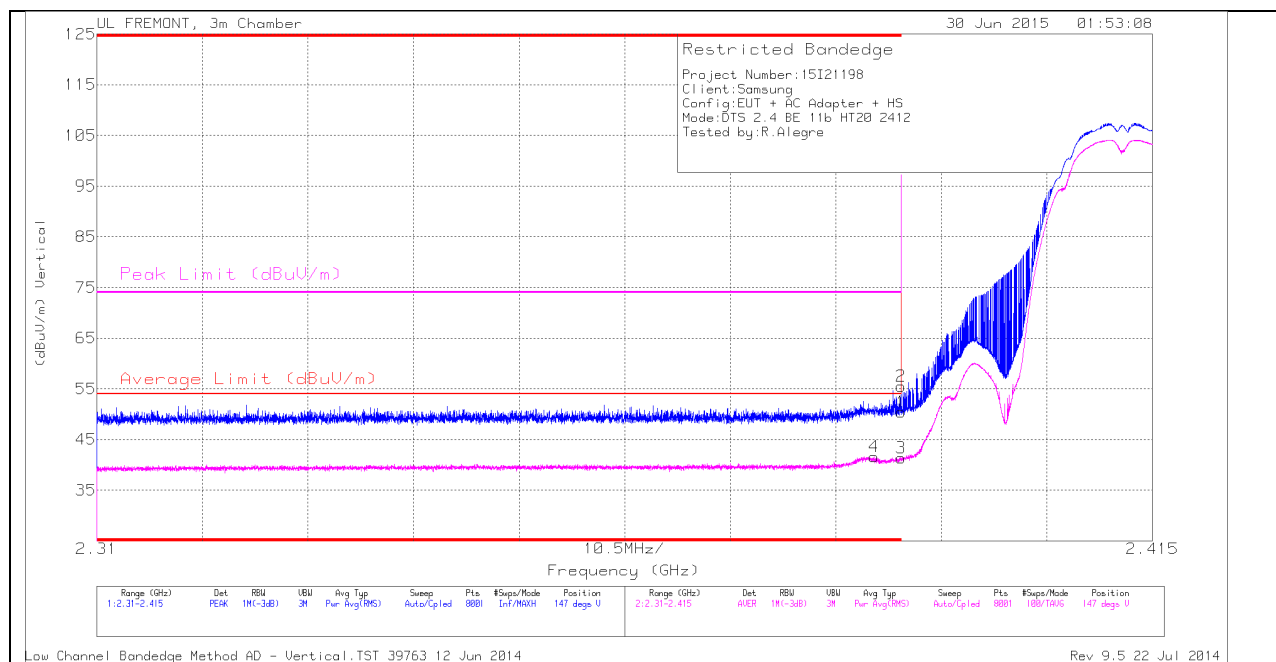
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.81	PK	32	-22.4	50.41	-	-	74	-23.59	104	155	H
2	* 2.39	45.98	PK	32	-22.4	55.58	-	-	74	-18.42	104	155	H
3	* 2.39	31.89	RMS	32	-22.4	41.49	54	-12.51	-	-	104	155	H
4	* 2.389	32.36	RMS	32	-22.4	41.96	54	-12.04	-	-	104	155	H

VERTICAL PEAK AND AVERAGE PLOT

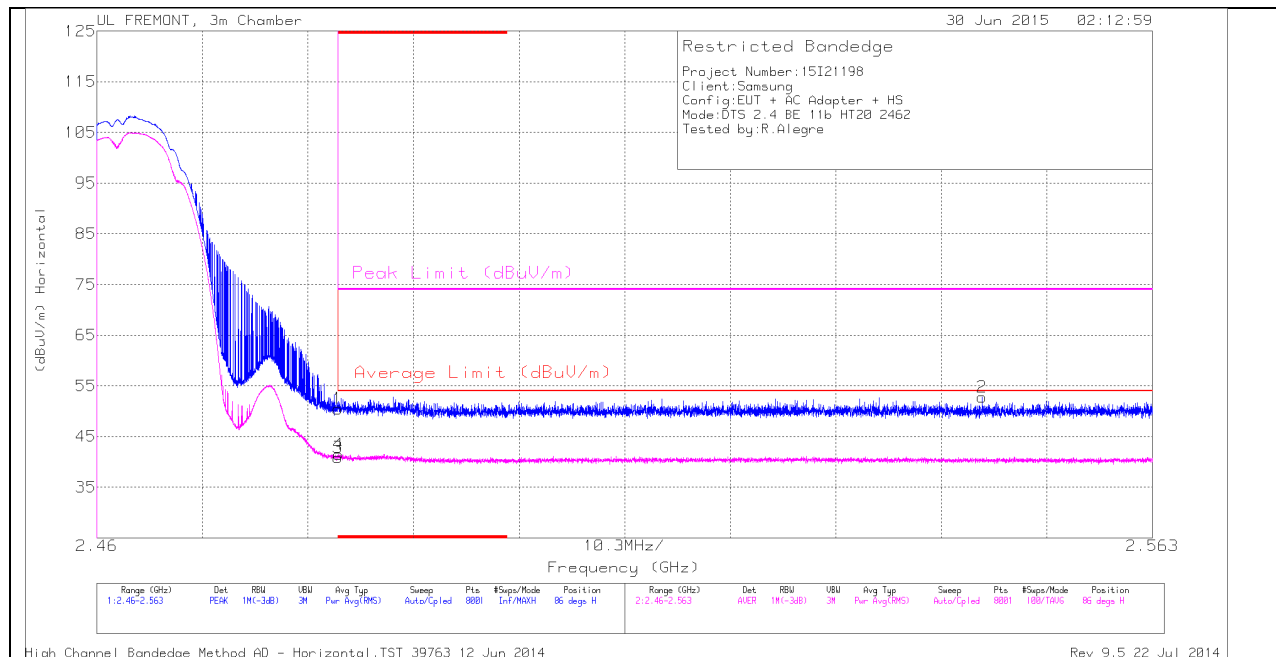


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.77	PK	32	-22.4	50.37	-	-	74	-23.63	147	300	V
2	* 2.39	45.85	PK	32	-22.4	55.45	-	-	74	-18.55	147	300	V
3	* 2.39	31.77	RMS	32	-22.4	41.37	54	-12.63	-	-	147	300	V
4	* 2.387	31.95	RMS	32	-22.4	41.55	54	-12.45	-	-	147	300	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

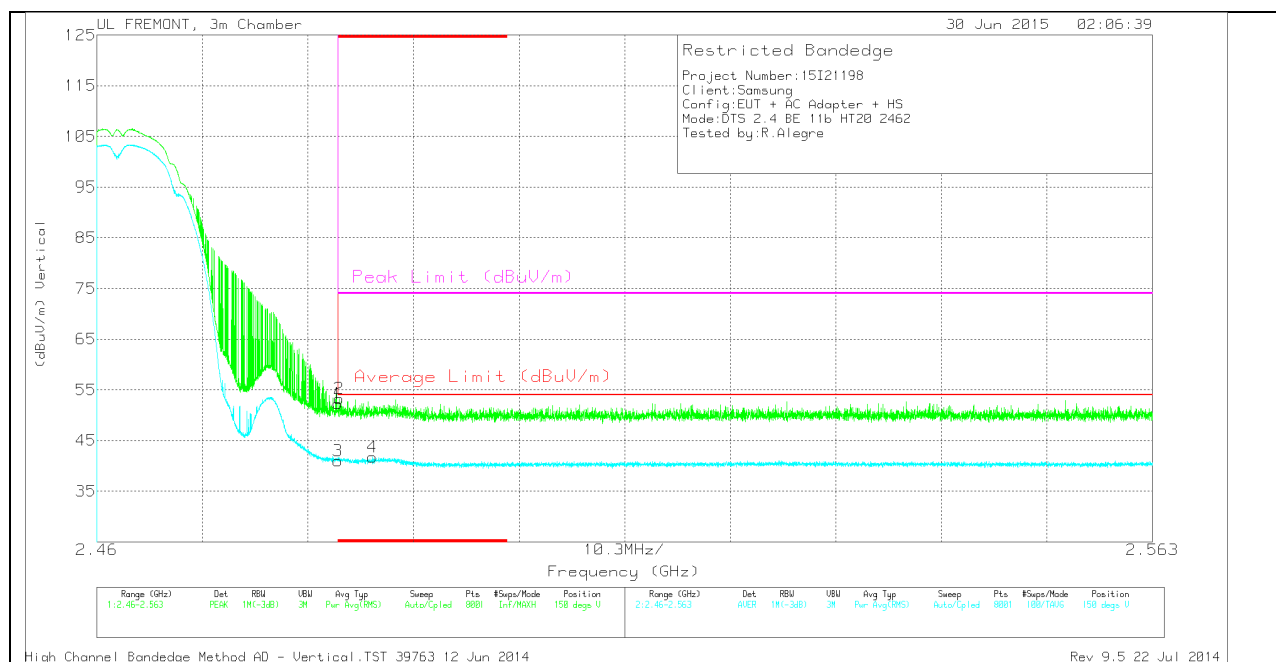
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.28	PK	32.3	-22.1	50.48	-	-	74	-23.52	86	191	H
3	* 2.484	30.68	RMS	32.3	-22.1	40.88	54	-13.12	-	-	86	191	H
4	* 2.484	31.24	RMS	32.3	-22.1	41.44	54	-12.56	-	-	86	191	H
2	2.546	42.38	PK	32.4	-22	52.78	-	-	74	-21.22	86	191	H

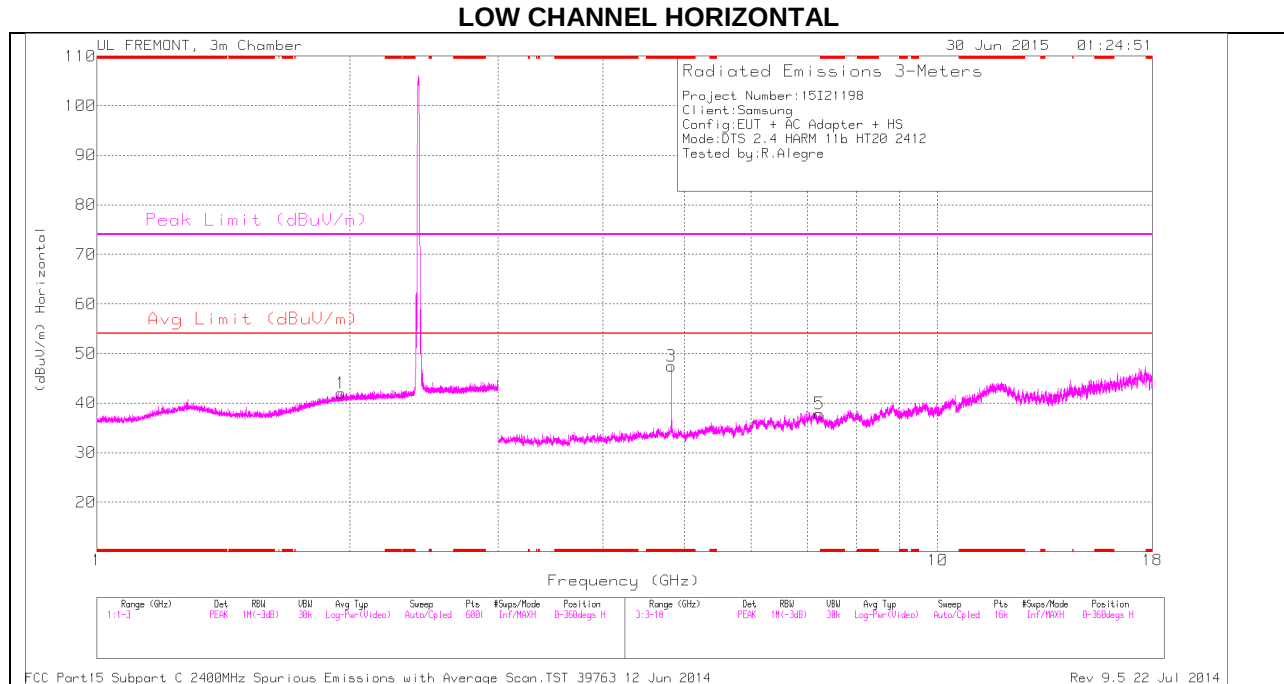
VERTICAL PEAK AND AVERAGE PLOT



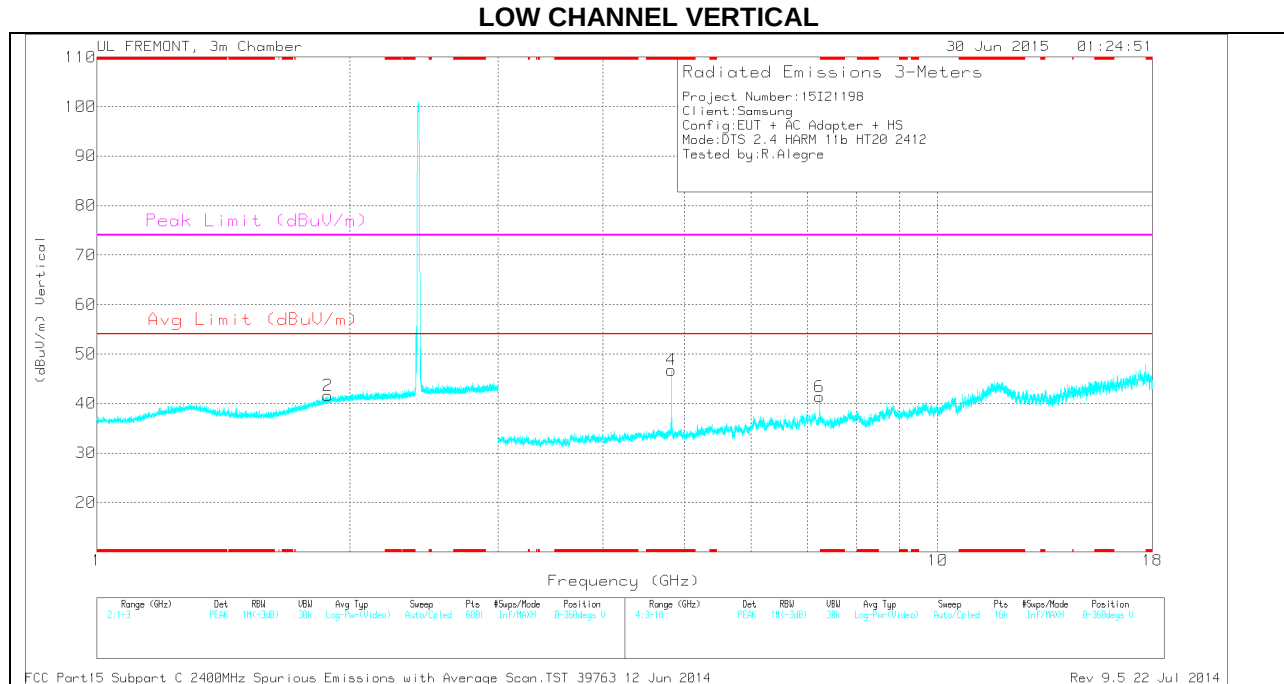
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	42.11	PK	32.3	-22.1	52.31	-	-	74	-21.69	150	293	V
2	* 2.484	43.12	PK	32.3	-22.1	53.32	-	-	74	-20.68	150	293	V
3	* 2.484	30.75	RMS	32.3	-22.1	40.95	54	-13.05	-	-	150	293	V
4	* 2.487	31.6	RMS	32.3	-22.2	41.7	54	-12.3	-	-	150	293	V

HARMONICS AND SPURIOUS EMISSIONS



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

TRACE MARKERS

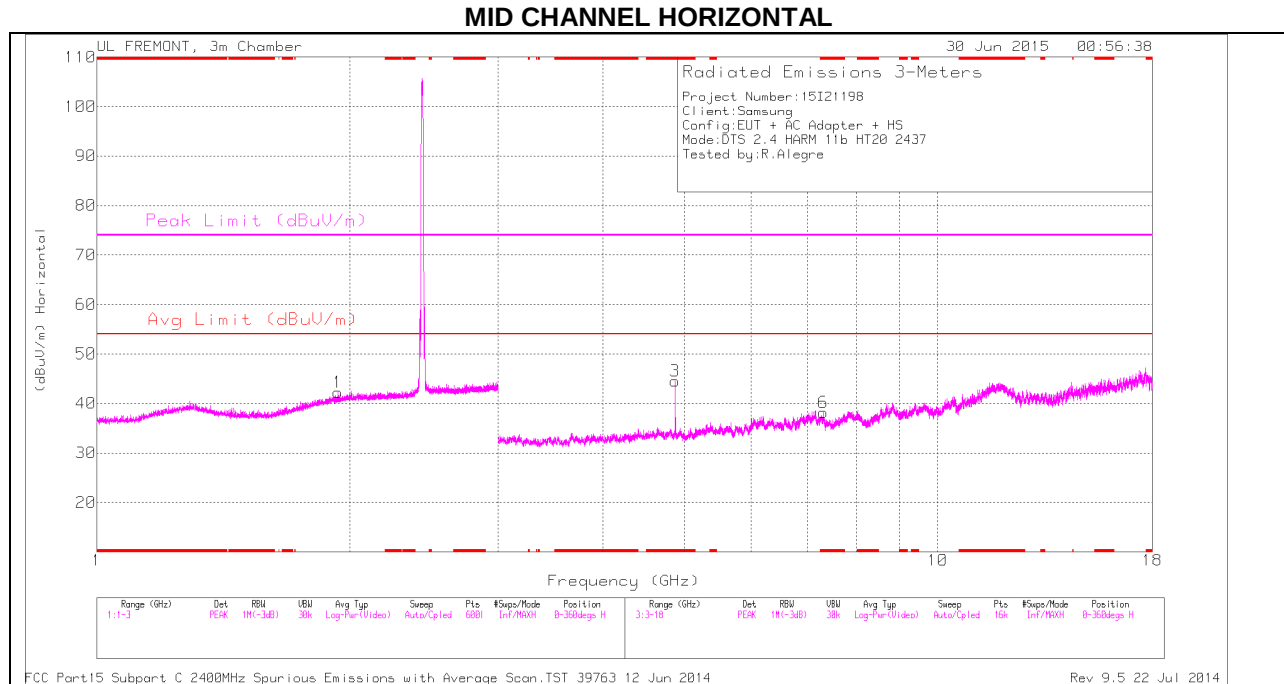
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.824	42.9	PK	34	-29.4	47.5	-	-	74	-26.5	0-360	200	H
4	* 4.824	42.16	PK	34	-29.4	46.76	-	-	74	-27.24	0-360	200	V
2	1.882	33.18	PK	30.9	-22.5	41.58	-	-	-	-	0-360	200	V
1	1.952	33.29	PK	31.3	-22.6	41.99	-	-	-	-	0-360	200	H
6	7.234	34.61	PK	35.6	-28.9	41.31	-	-	-	-	0-360	200	V
5	7.238	31.07	PK	35.6	-28.8	37.87	-	-	-	-	0-360	200	H

PK - Peak detector

RADIATED EMISSIONS

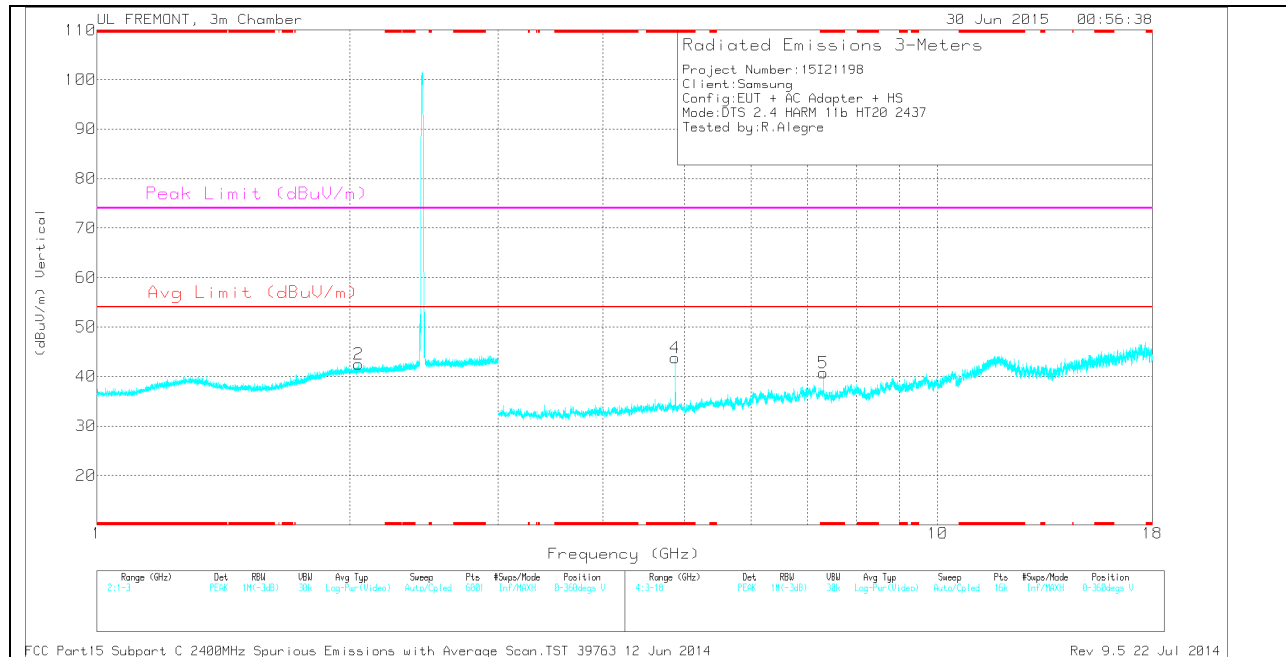
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.824	47.75	PK2	34	-29.4	52.35	-	-	74	-21.65	261	199	H
* 4.824	43.54	MAV1	34	-29.4	48.14	54	-5.86	-	-	261	199	H
* 4.824	46.85	PK2	34	-29.4	51.45	-	-	74	-22.55	222	249	V
* 4.824	42.94	MAV1	34	-29.4	47.54	54	-6.46	-	-	222	249	V
1.881	42.63	PK2	30.9	-22.5	51.03	-	-	74	-22.97	61	200	V
1.881	30.73	MAV1	30.9	-22.5	39.13	54	-14.87	-	-	61	200	V
1.952	30.7	MAV1	31.3	-22.6	39.4	54	-14.6	-	-	61	200	H
1.953	42.34	PK2	31.3	-22.6	51.04	-	-	74	-22.96	61	200	H
7.235	34.14	MAV1	35.6	-28.9	40.84	54	-13.16	-	-	38	249	V
7.236	43.08	PK2	35.6	-28.8	49.88	-	-	74	-24.12	38	249	V
7.239	40.13	PK2	35.6	-28.8	46.93	-	-	74	-27.07	61	180	H
7.239	28.89	MAV1	35.6	-28.8	35.69	54	-18.31	-	-	61	180	H

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Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.874	39.66	PK	34	-29.1	44.56	-	-	74	-29.44	0-360	200	H
6	* 7.309	30.08	PK	35.6	-27.5	38.18	-	-	74	-35.82	0-360	200	H
4	* 4.874	38.92	PK	34	-29.1	43.82	-	-	74	-30.18	0-360	200	V
5	* 7.311	32.5	PK	35.6	-27.4	40.7	-	-	74	-33.3	0-360	200	V
1	1.936	33.61	PK	31.2	-22.6	42.21	-	-	-	-	0-360	100	H
2	2.049	33.37	PK	31.5	-22.4	42.47	-	-	-	-	0-360	100	V

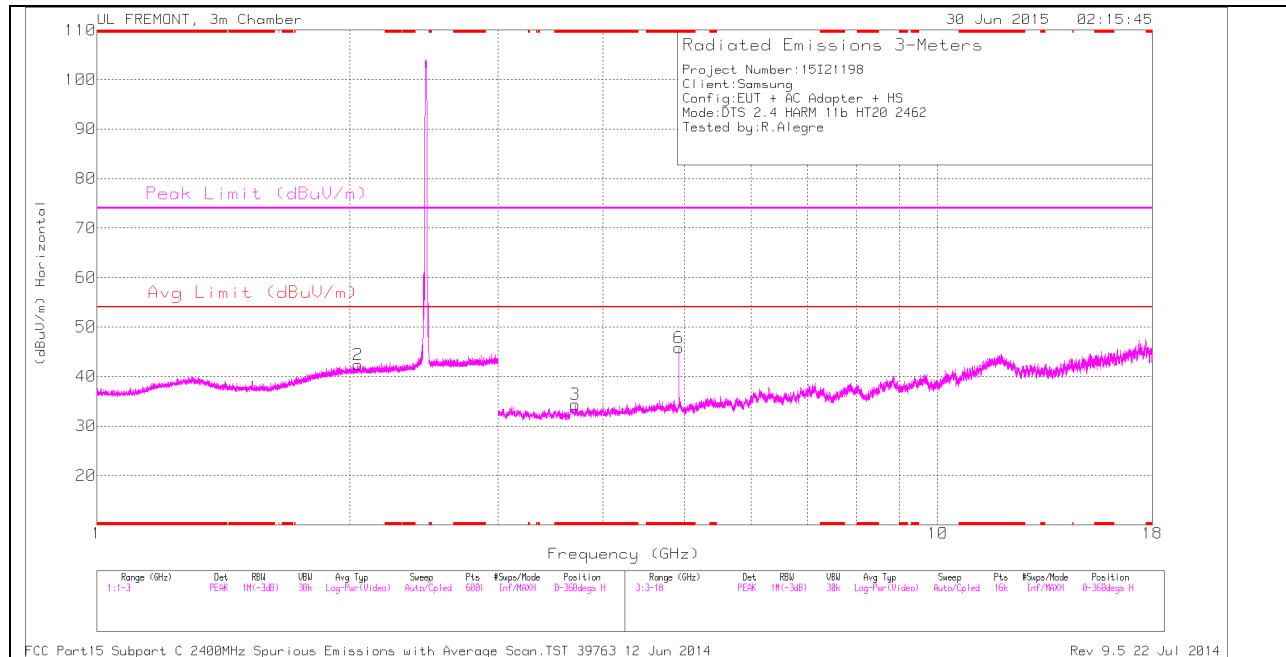
PK - Peak detector

RADIATED EMISSIONS

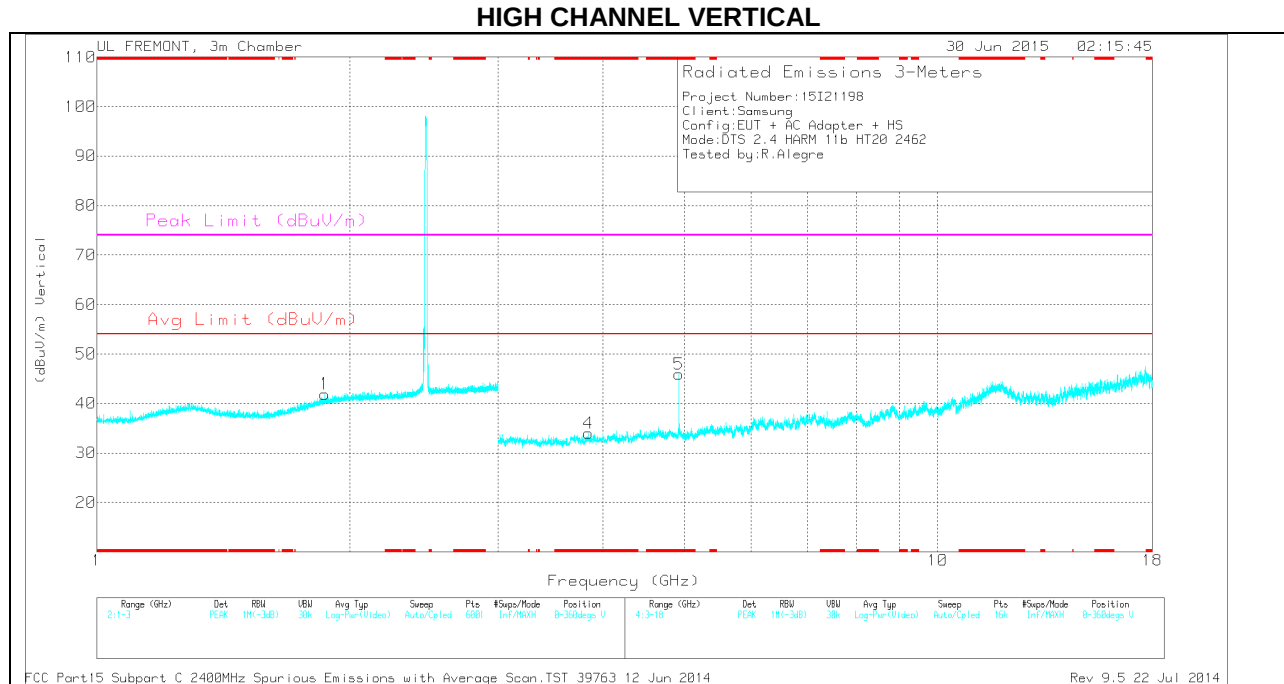
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.874	45.33	PK2	34	-29.1	50.23	-	-	74	-23.77	261	195	H
* 4.874	40.71	MAV1	34	-29.1	45.61	54	-8.39	-	-	261	195	H
* 7.309	38.77	PK2	35.6	-27.5	46.87	-	-	74	-27.13	351	198	H
* 7.31	27.25	MAV1	35.6	-27.5	35.35	54	-18.65	-	-	351	198	H
* 7.311	39.14	PK2	35.6	-27.4	47.34	-	-	74	-26.66	351	200	V
* 7.312	28.36	MAV1	35.6	-27.4	36.56	54	-17.44	-	-	351	200	V
* 4.874	45.11	PK2	34	-29.1	50.01	-	-	74	-23.99	223	247	V
* 4.874	40.28	MAV1	34	-29.1	45.18	54	-8.82	-	-	223	247	V
1.935	42.32	PK2	31.2	-22.6	50.92	-	-	74	-23.08	223	100	H
1.937	30.73	MAV1	31.3	-22.5	39.53	54	-14.47	-	-	223	100	H
2.048	30.82	MAV1	31.5	-22.5	39.82	54	-14.18	-	-	223	100	V
2.05	42.84	PK2	31.5	-22.4	51.94	-	-	74	-22.06	223	100	V

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HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 3.707	31.38	PK	33	-30	34.38	-	-	74	-39.62	0-360	100	H
6	* 4.924	41.43	PK	34	-29.6	45.83	-	-	74	-28.17	0-360	200	H
4	* 3.844	31.3	PK	33.1	-30.4	34	-	-	74	-40	0-360	200	V
5	* 4.924	41.54	PK	34	-29.6	45.94	-	-	74	-28.06	0-360	100	V
1	1.867	33.73	PK	30.8	-22.6	41.93	-	-	-	-	0-360	100	V
2	2.043	33.33	PK	31.5	-22.5	42.33	-	-	-	-	0-360	100	H

PK - Peak detector

RADIATED EMISSIONS

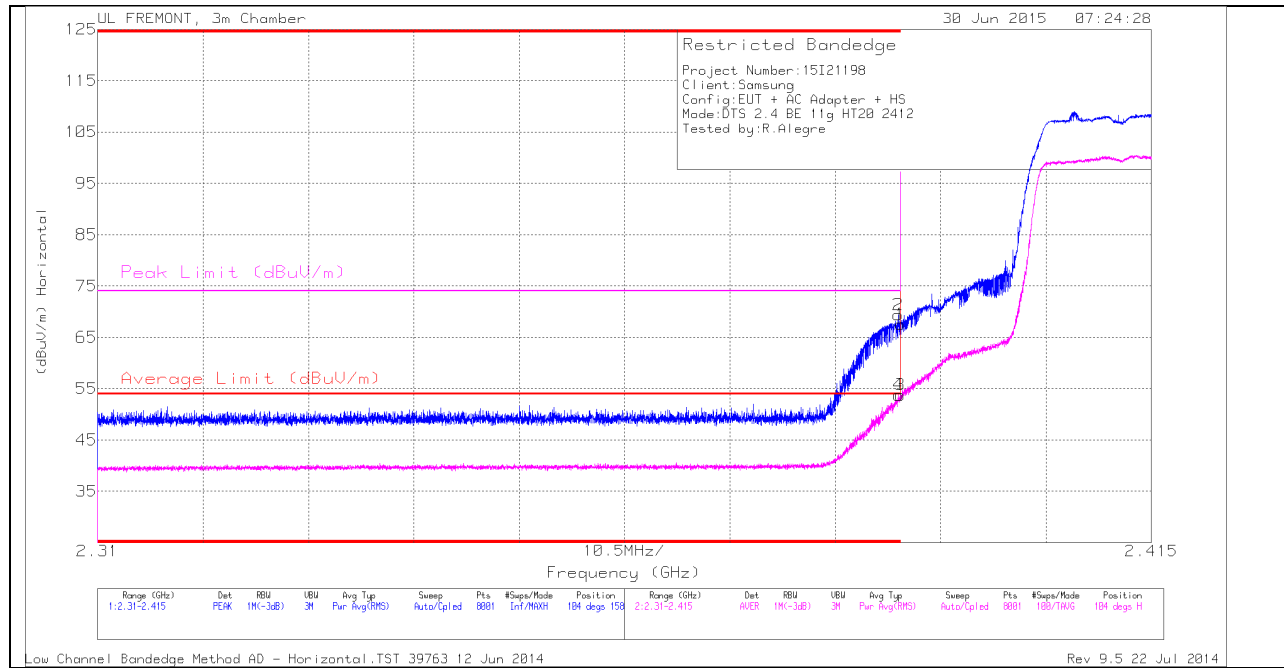
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.924	47.42	PK2	34	-29.6	51.82	-	-	74	-22.18	261	318	H
* 4.924	43.25	MAV1	34	-29.6	47.65	54	-6.35	-	-	261	318	H
* 3.706	40.06	PK2	33	-30	43.06	-	-	74	-30.94	261	186	H
* 3.708	28.34	MAV1	33	-30	31.34	54	-22.66	-	-	261	186	H
* 4.924	47.72	PK2	34	-29.6	52.12	-	-	74	-21.88	330	102	V
* 4.924	43.49	MAV1	34	-29.6	47.89	54	-6.11	-	-	330	102	V
* 3.842	40.05	PK2	33.1	-30.4	42.75	-	-	74	-31.25	261	200	V
* 3.842	28.77	MAV1	33.1	-30.4	31.47	54	-22.53	-	-	261	200	V
1.866	42.43	PK2	30.8	-22.6	50.63	-	-	74	-23.37	261	100	V
1.867	30.87	MAV1	30.8	-22.6	39.07	54	-14.93	-	-	261	100	V
2.042	30.97	MAV1	31.5	-22.4	40.07	54	-13.93	-	-	261	100	H
2.043	42.47	PK2	31.5	-22.4	51.57	-	-	74	-22.43	261	100	H

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10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

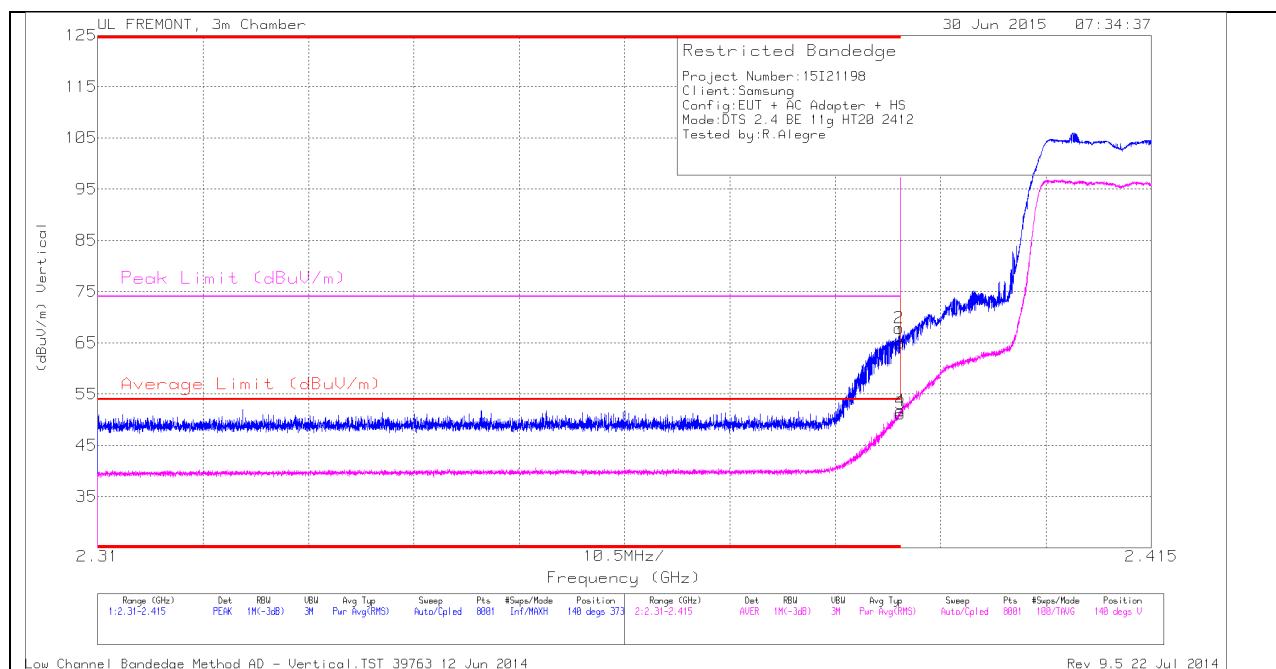
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	57.94	PK	32	-22.4	0	67.54	-	-	74	-6.46	104	158	H
2	* 2.39	59.76	PK	32	-22.4	0	69.36	-	-	74	-6.44	104	158	H
3	* 2.39	44.01	RMS	32	-22.4	.16	53.77	54	-23	-	-	104	158	H
4	* 2.39	44.01	RMS	32	-22.4	.16	53.77	54	-23	-	-	104	158	H

VERTICAL PEAK AND AVERAGE PLOT

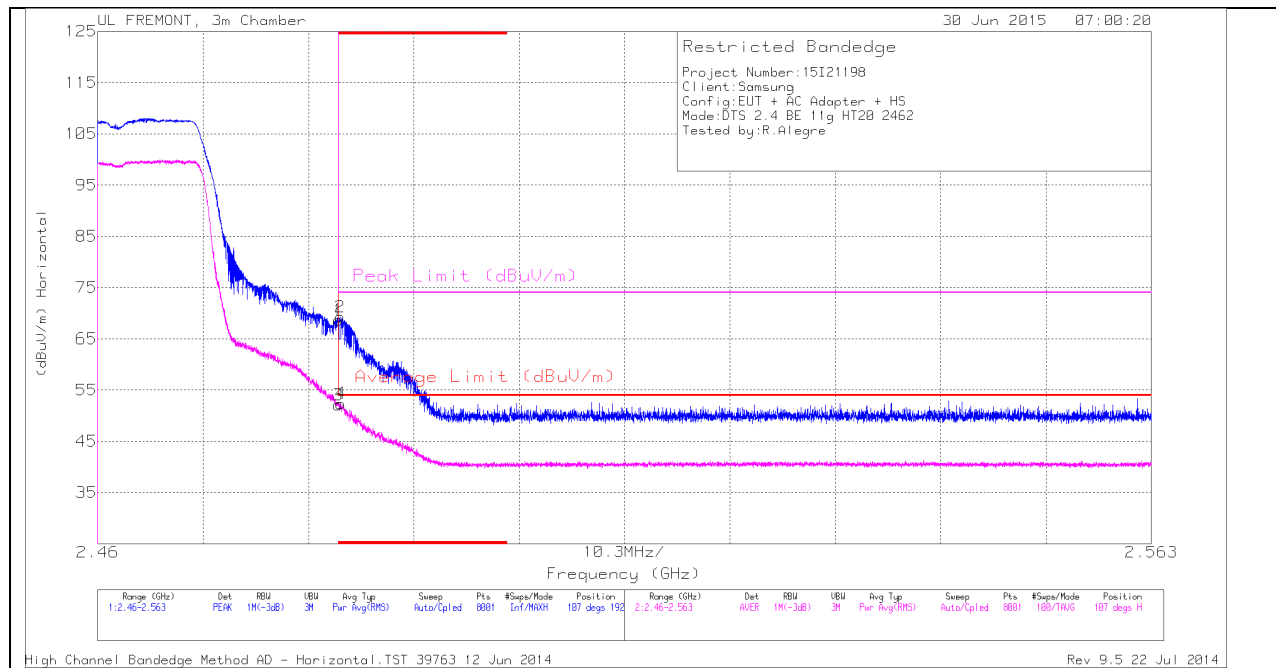


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	55.35	PK	32	-22.4	0	64.95	-	-	74	-9.05	140	373	V
2	* 2.39	58.27	PK	32	-22.4	0	67.87	-	-	74	-6.13	140	373	V
3	* 2.39	41.42	RMS	32	-22.4	.16	51.18	54	-2.82	-	-	140	373	V
4	* 2.39	41.94	RMS	32	-22.4	.16	51.7	54	-2.3	-	-	140	373	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

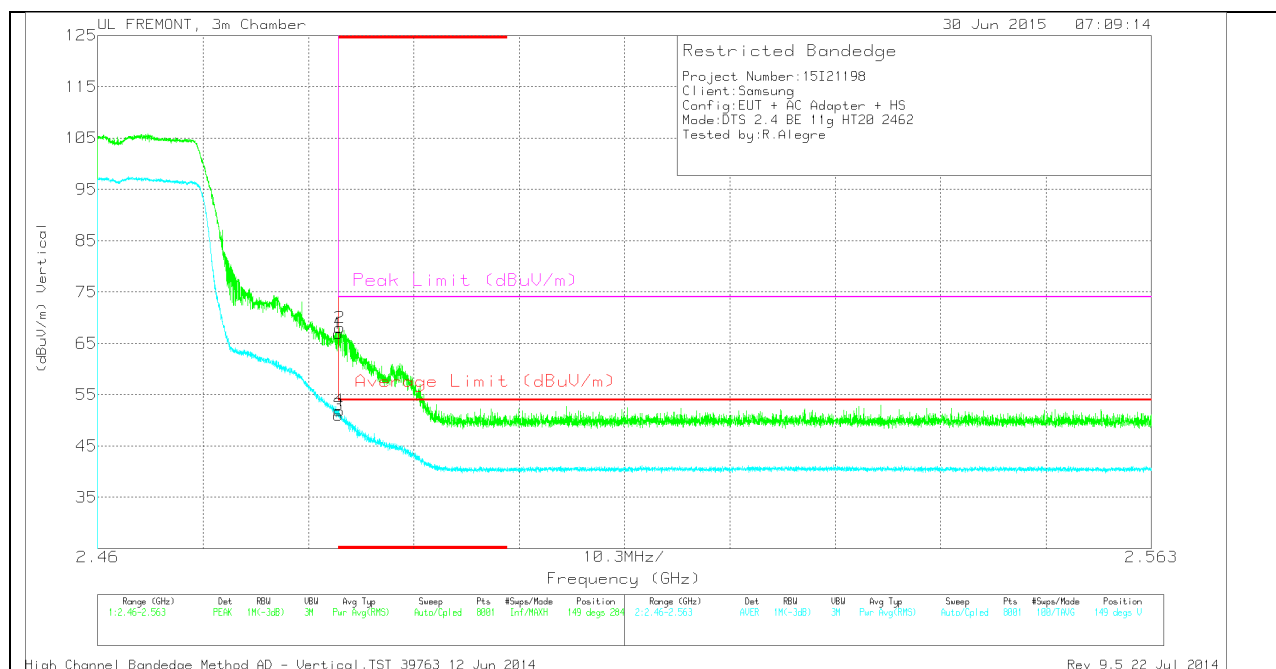
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	58.48	PK	32.3	-22.1	0	68.68	-	-	74	-5.32	107	192	H
2	* 2.484	59.07	PK	32.3	-22.1	0	69.27	-	-	74	-4.73	107	192	H
3	* 2.484	41.75	RMS	32.3	-22.1	.16	52.11	54	-1.89	-	-	107	192	H
4	* 2.484	42.01	RMS	32.3	-22.1	.16	52.37	54	-1.63	-	-	107	192	H

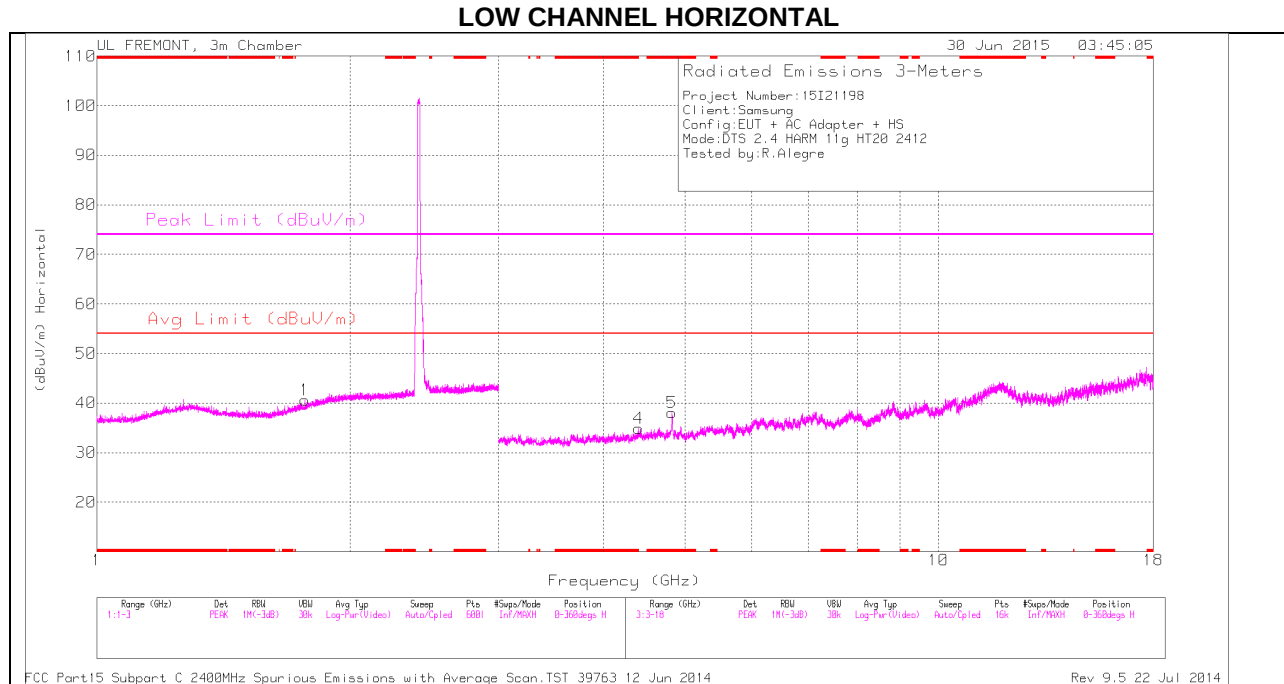
VERTICAL PEAK AND AVERAGE PLOT



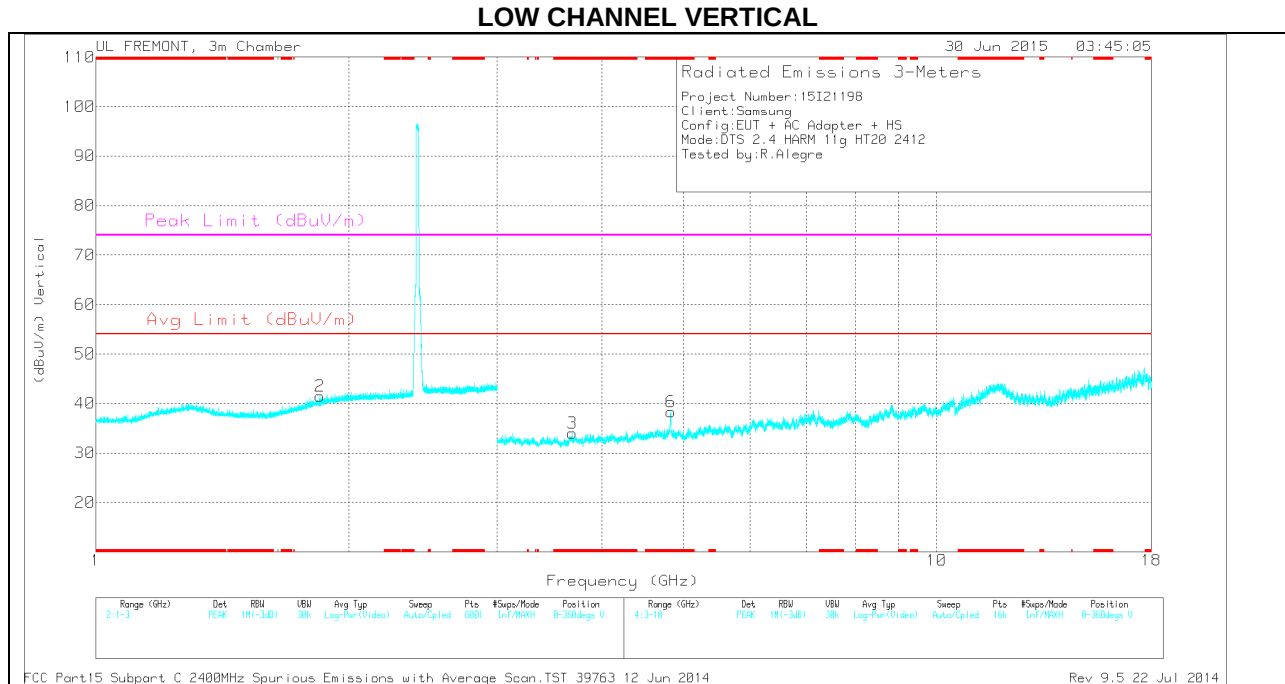
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	56.7	PK	32.3	-22.1	0	66.9	-	-	74	-7.1	149	284	V
2	* 2.484	57.86	PK	32.3	-22.1	0	68.06	-	-	74	-5.94	149	284	V
3	* 2.484	40.67	RMS	32.3	-22.1	.16	51.03	54	-2.97	-	-	149	284	V
4	* 2.484	41.54	RMS	32.3	-22.1	.16	51.9	54	-2.1	-	-	149	284	V

HARMONICS AND SPURIOUS EMISSIONS



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 4.822	33.44	PK	34	-29.4	0	38.04	-	-	74	-35.96	0-360	200	H
3	* 3.685	31.07	PK	33	-30.1	0	33.97	-	-	74	-40.03	0-360	100	V
6	* 4.826	33.77	PK	34	-29.4	0	38.37	-	-	74	-35.63	0-360	200	V
1	1.766	33.5	PK	29.8	-22.7	0	40.6	-	-	-	-	0-360	200	H
2	1.848	33.44	PK	30.6	-22.6	0	41.44	-	-	-	-	0-360	100	V
4	4.401	30.74	PK	33.6	-29.5	0	34.84	-	-	-	-	0-360	100	H

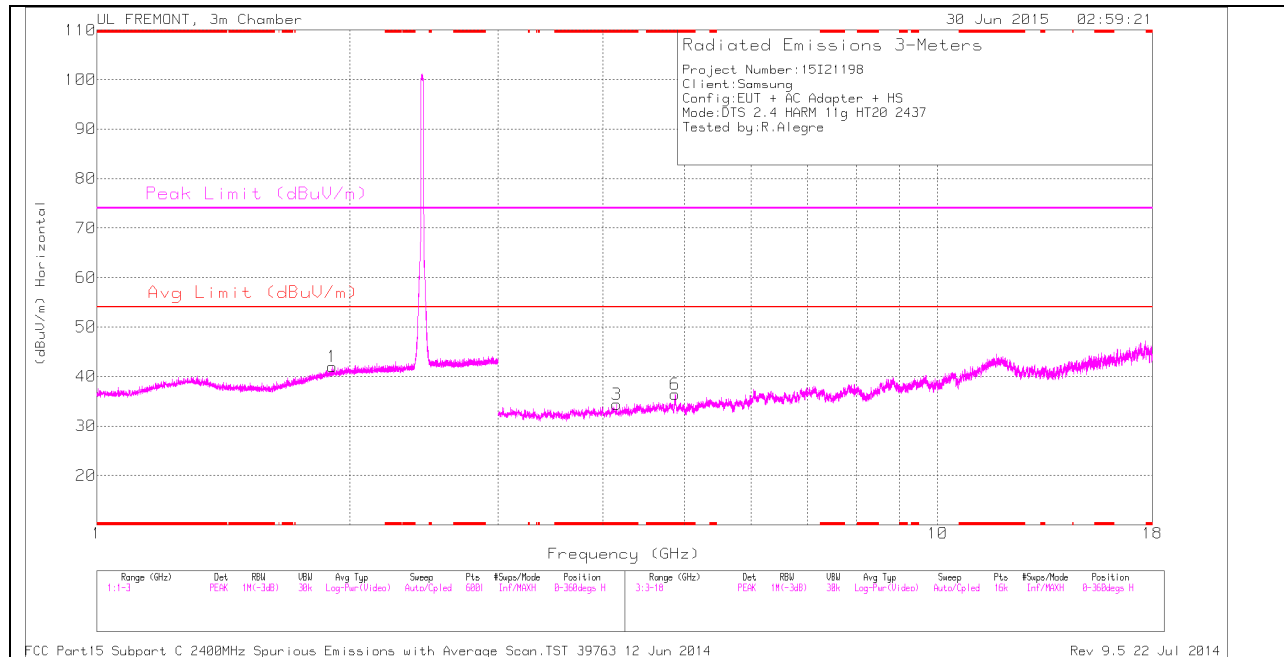
PK - Peak detector

RADIATED EMISSIONS

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.824	43.94	PK2	34	-29.4	0	48.54	-	-	74	-25.46	262	229	H
* 4.822	31.83	MAV1	34	-29.4	.16	36.59	54	-17.41	-	-	262	229	H
* 4.826	44.16	PK2	34	-29.4	0	48.76	-	-	74	-25.24	234	199	V
* 4.824	31.5	MAV1	34	-29.4	.16	36.26	54	-17.74	-	-	234	199	V
* 3.686	40.48	PK2	33	-30.2	0	43.28	-	-	74	-30.72	262	100	V
* 3.685	28.71	MAV1	33	-30.1	.16	31.77	54	-22.23	-	-	262	100	V
1.767	42.17	PK2	29.8	-22.7	0	49.27	-	-	74	-24.73	262	200	H
1.849	42.1	PK2	30.6	-22.5	0	50.2	-	-	74	-23.80	262	100	V
4.401	39.55	PK2	33.6	-29.5	0	43.65	-	-	74	-30.35	262	110	H
4.402	28.14	MAV1	33.6	-29.5	.16	32.4	-	-	-	-	262	110	H

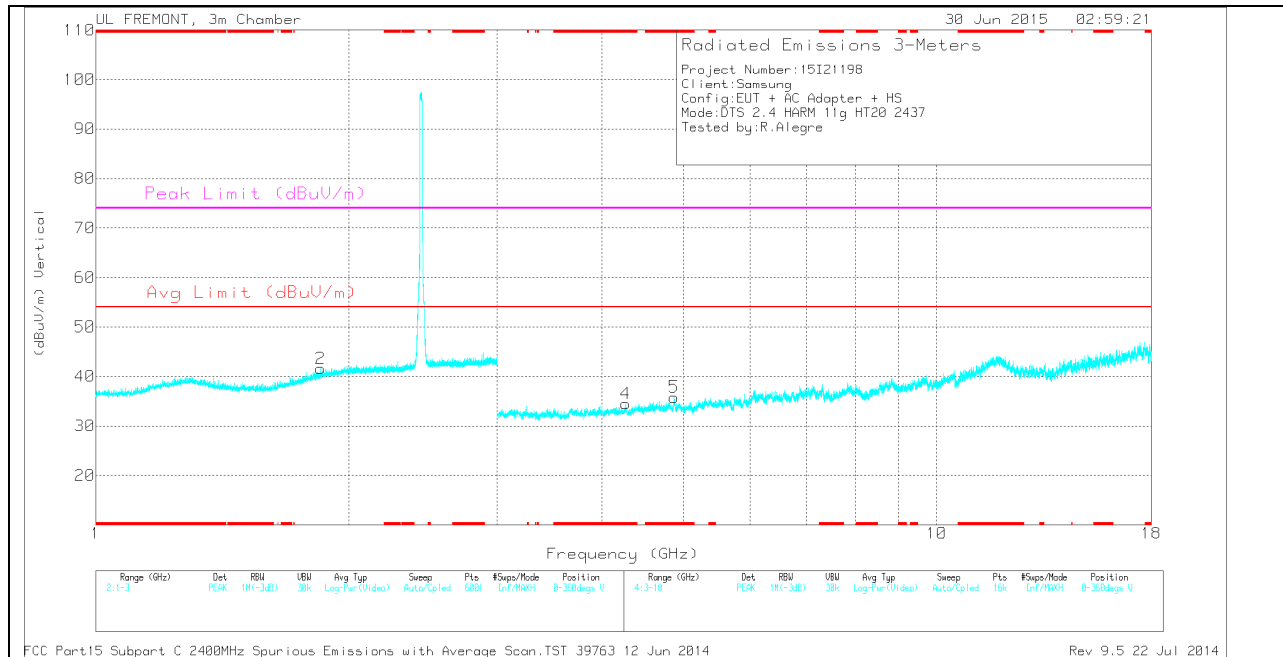
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.154	30.82	PK	33.3	-29.7	0	34.42	-	-	74	-39.58	0-360	100	H
6	* 4.872	31.48	PK	34	-29.1	0	36.38	-	-	74	-37.62	0-360	200	H
4	* 4.267	31.57	PK	33.4	-30.5	0	34.47	-	-	74	-39.53	0-360	100	V
5	* 4.872	30.94	PK	34	-29.1	0	35.84	-	-	74	-38.16	0-360	100	V
2	1.849	33.49	PK	30.6	-22.5	0	41.59	-	-	-	-	0-360	200	V
1	1.907	33.36	PK	31.1	-22.5	0	41.96	-	-	-	-	0-360	100	H

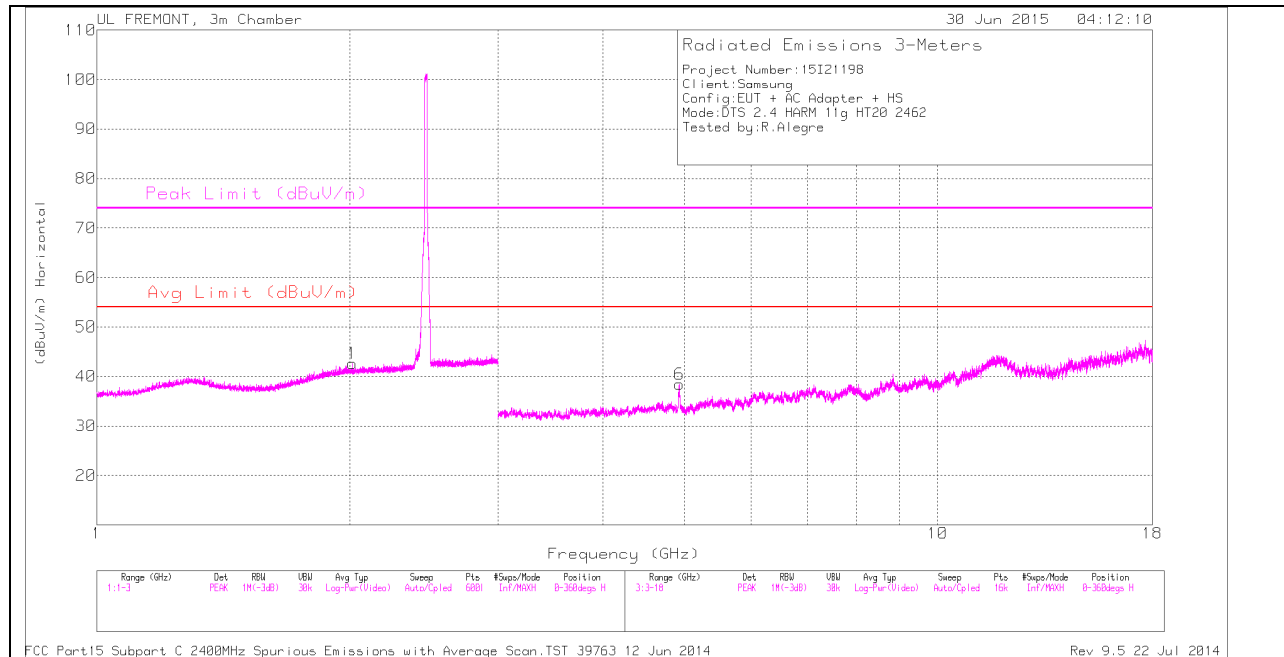
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.87	43.56	PK2	34	-29.1	0	48.46	-	-	74	-25.54	262	175	H
* 4.872	31.08	MAV1	34	-29.1	.16	36.14	54	-17.86	-	-	262	175	H
* 4.156	40.32	PK2	33.3	-29.6	0	44.02	-	-	74	-29.98	262	100	H
* 4.153	28.33	MAV1	33.3	-29.7	.16	32.09	54	-21.91	-	-	262	100	H
* 4.87	42.72	PK2	34	-29.1	0	47.62	-	-	74	-26.38	210	243	V
* 4.872	30.3	MAV1	34	-29.1	.16	35.36	54	-18.64	-	-	210	243	V
* 4.268	40.49	PK2	33.4	-30.5	0	43.39	-	-	74	-30.61	262	100	V
* 4.267	28.83	MAV1	33.4	-30.5	.16	31.89	54	-22.11	-	-	262	100	V
1.847	43	PK2	30.6	-22.6	0	51	-	-	74	-23	262	200	V
1.849	30.7	MAV1	30.6	-22.5	.16	38.96	54	-15.04	-	-	262	200	V
1.905	42.04	PK2	31.1	-22.6	0	50.54	-	-	74	-23.46	262	100	H
1.908	30.61	MAV1	31.1	-22.5	.16	39.37	54	-14.63	-	-	262	100	H

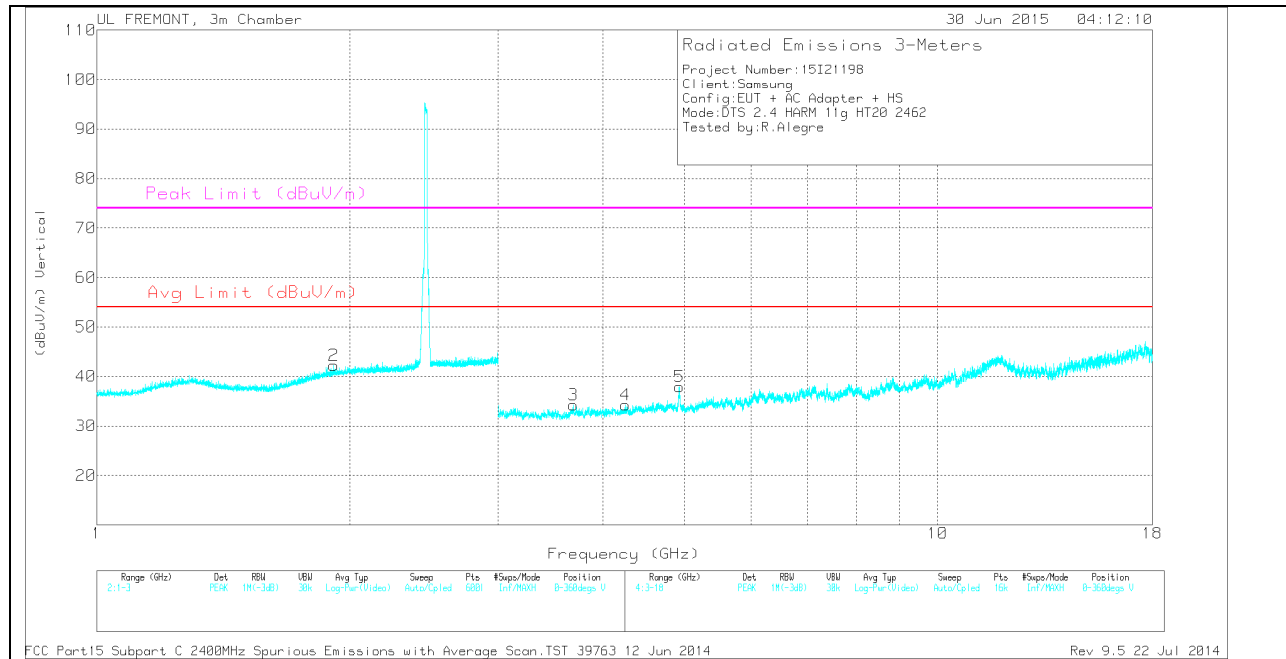
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HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	1.913	33.66	PK	31.2	-22.6	0	42.26	-	-	-	-	0-360	200	V
1	2.013	33.59	PK	31.5	-22.5	0	42.59	-	-	-	-	0-360	100	H
3	3.685	31.3	PK	33	-30.1	0	34.2	-	-	74	-39.8	0-360	200	V
4	4.251	31.37	PK	33.4	-30.5	0	34.27	-	-	74	-39.73	0-360	100	V
6	4.926	34.07	PK	34	-29.6	0	38.47	-	-	74	-35.53	0-360	200	H
5	4.926	33.48	PK	34	-29.6	0	37.88	-	-	74	-36.12	0-360	100	V

PK - Peak detector

RADIATED EMISSIONS

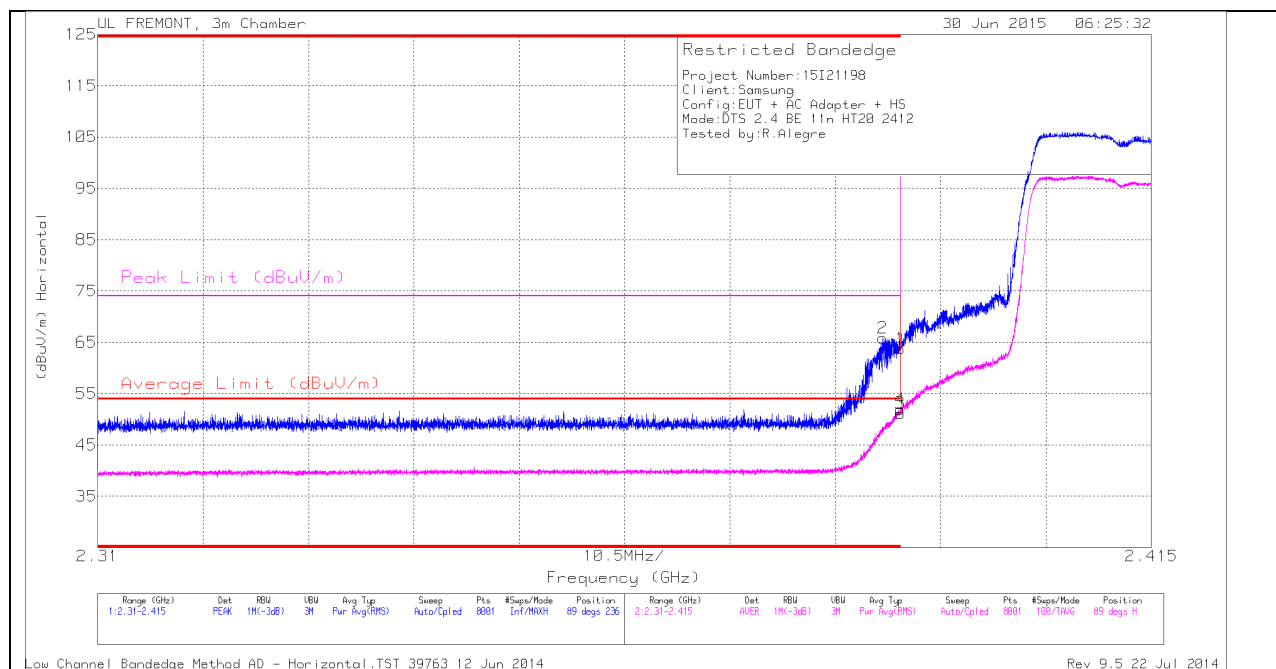
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.913	42	PK2	31.2	-22.6	0	50.6	-	-	74	-23.4	11	200	V
2.011	42.31	PK2	31.5	-22.5	0	51.31	-	-	74	-22.69	11	100	H
3.685	28.86	MAV1	33	-30.1	.16	31.92	54	-22.08	-	-	11	200	V
3.687	40.26	PK2	33	-30.2	0	43.06	-	-	74	-30.94	11	200	V
4.25	40.93	PK2	33.4	-30.5	0	43.83	-	-	74	-30.17	11	100	V
4.25	28.9	MAV1	33.4	-30.5	.16	31.96	54	-22.04	-	-	11	100	V
4.253	40.46	PK2	33.4	-30.5	0	43.36	-	-	74	-30.64	11	100	V
4.924	45.03	PK2	34	-29.6	0	49.43	-	-	74	-24.57	11	142	V
4.926	44.15	PK2	34	-29.6	0	48.55	-	-	74	-25.45	321	353	H
4.926	31.85	MAV1	34	-29.6	.16	36.41	54	-17.59	-	-	321	353	H
4.926	32.41	MAV1	34	-29.6	.16	36.97	54	-17.03	-	-	11	142	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

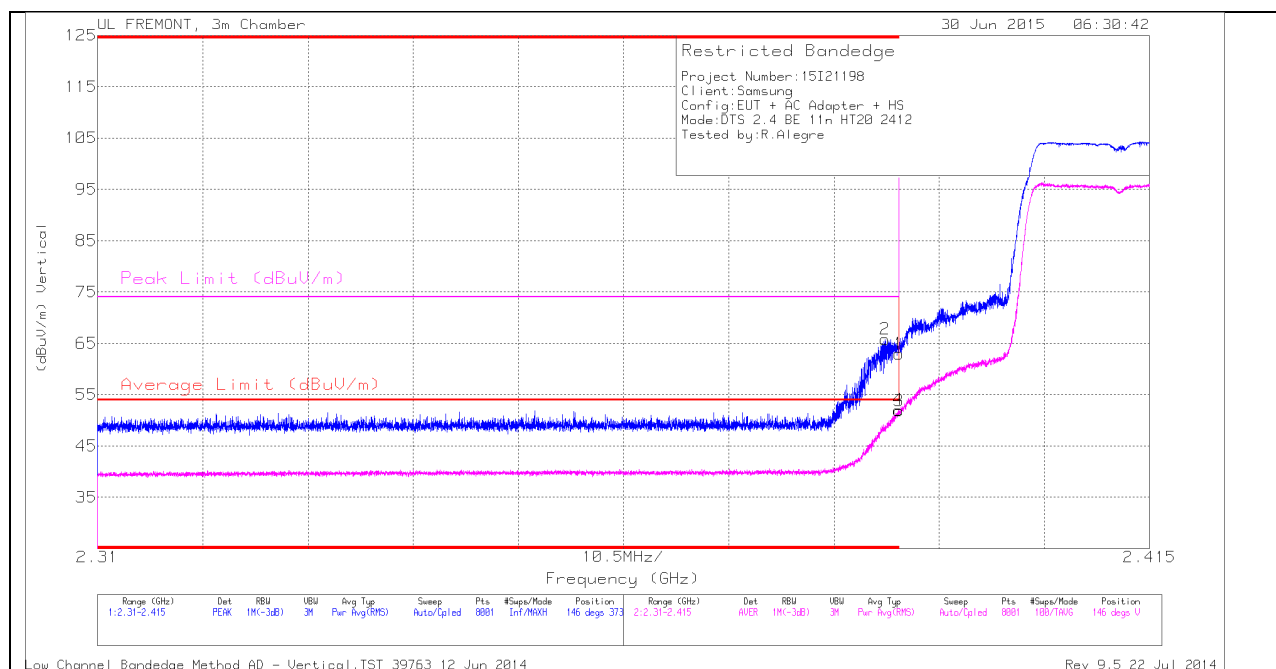
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	54.17	PK	32	-22.4	0	63.77	-	-	74	-10.23	89	236	H
2	* 2.388	56.23	PK	32	-22.4	0	65.83	-	-	74	-8.17	89	236	H
3	* 2.39	41.37	RMS	32	-22.4	.19	51.16	54	-2.84	-	-	89	236	H
4	* 2.39	42.2	RMS	32	-22.4	.19	51.99	54	-2.01	-	-	89	236	H

VERTICAL PEAK AND AVERAGE PLOT

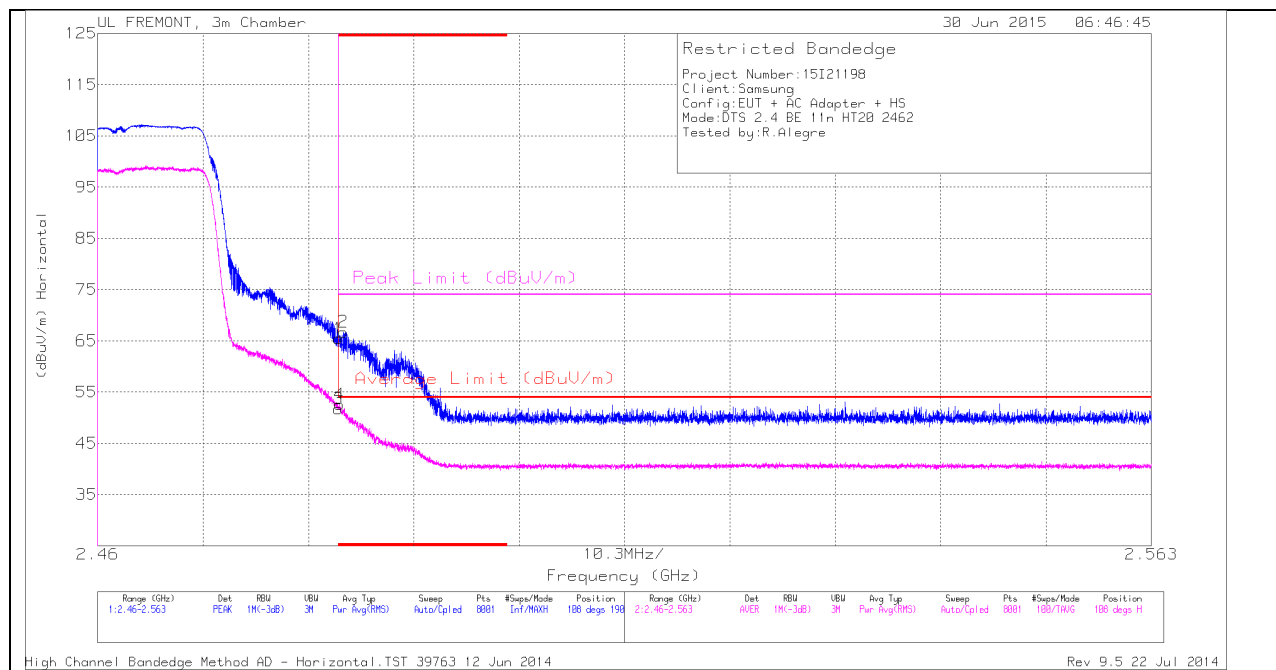


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	53.36	PK	32	-22.4	0	62.96	-	-	74	-11.04	146	373	V
2	* 2.389	56.18	PK	32	-22.4	0	65.78	-	-	74	-8.22	146	373	V
3	* 2.39	42.06	RMS	32	-22.4	.19	51.85	54	-2.15	-	-	146	373	V
4	* 2.39	42.24	RMS	32	-22.4	.19	52.03	54	-1.97	-	-	146	373	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

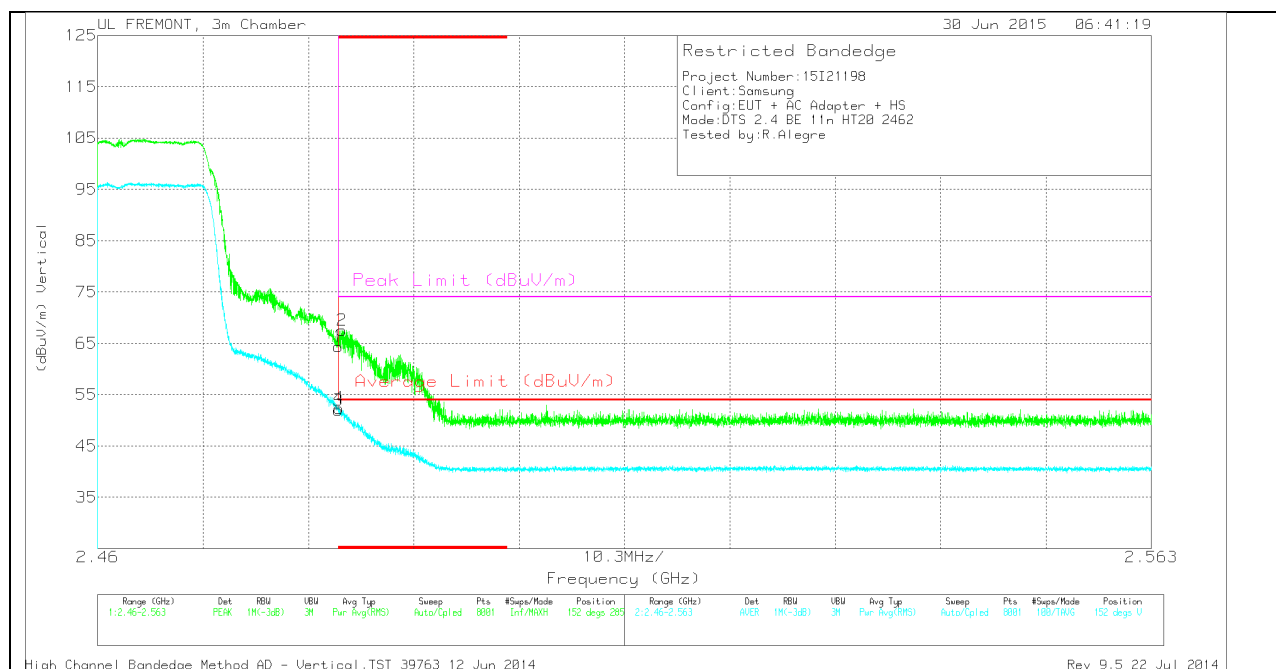
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	55.26	PK	32.3	-22.1	0	65.46	-	-	74	-8.54	108	190	H
2	* 2.484	56.54	PK	32.3	-22.1	0	66.74	-	-	74	-7.26	108	190	H
3	* 2.484	41.34	RMS	32.3	-22.1	.19	51.73	54	-2.27	-	-	108	190	H
4	* 2.484	42.2	RMS	32.3	-22.1	.19	52.59	54	-1.41	-	-	108	190	H

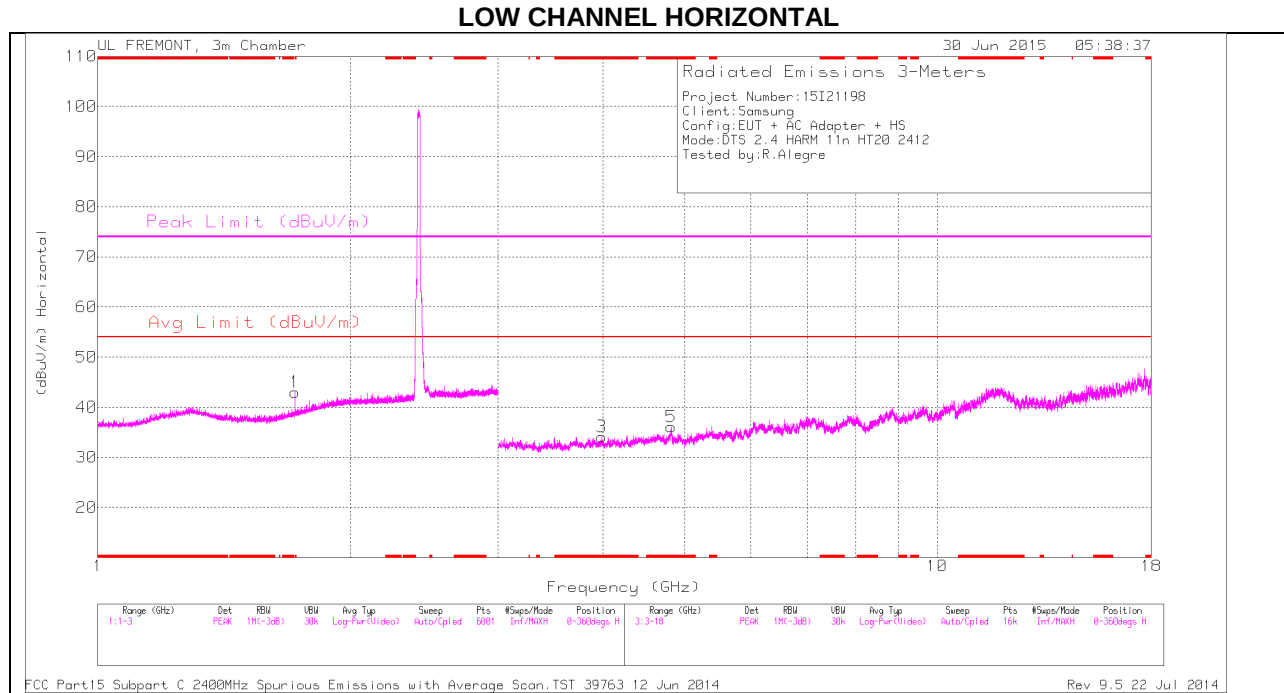
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

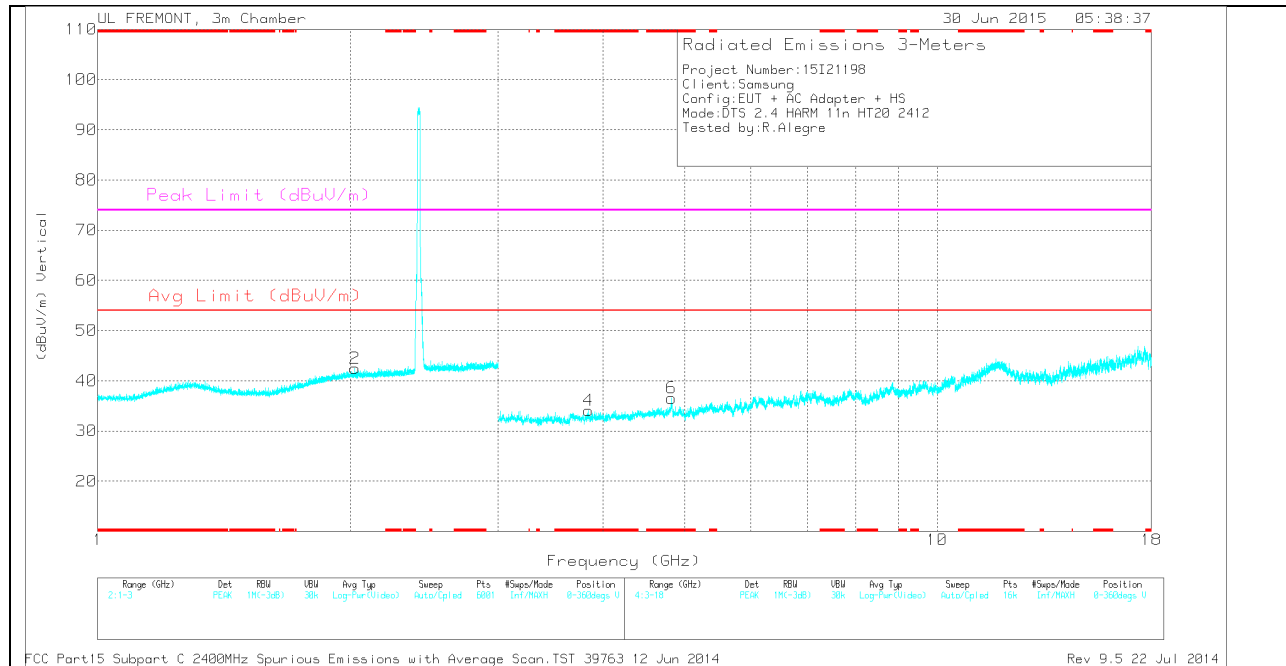
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	54.2	PK	32.3	-22.1	0	64.4	-	-	74	-9.6	152	285	V
2	* 2.484	57.32	PK	32.3	-22.1	0	67.52	-	-	74	-6.48	152	285	V
3	* 2.484	41.59	RMS	32.3	-22.1	.19	51.98	54	-2.02	-	-	152	285	V
4	* 2.484	41.98	RMS	32.3	-22.1	.19	52.37	54	-1.63	-	-	152	285	V

HARMONICS AND SPURIOUS EMISSIONS



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 3.982	31.42	PK	33.2	-30.5	0	34.12	-	-	74	-39.88	0-360	200	H
5	* 4.821	31.48	PK	34	-29.4	0	36.08	-	-	74	-37.92	0-360	100	H
4	* 3.841	31.4	PK	33.1	-30.4	0	34.1	-	-	74	-39.9	0-360	100	V
6	* 4.823	31.95	PK	34	-29.4	0	36.55	-	-	74	-37.45	0-360	200	V
1	1.717	36.62	PK	29.2	-22.8	0	43.02	-	-	-	-	0-360	200	H
2	2.025	33.45	PK	31.5	-22.5	0	42.45	-	-	-	-	0-360	200	V

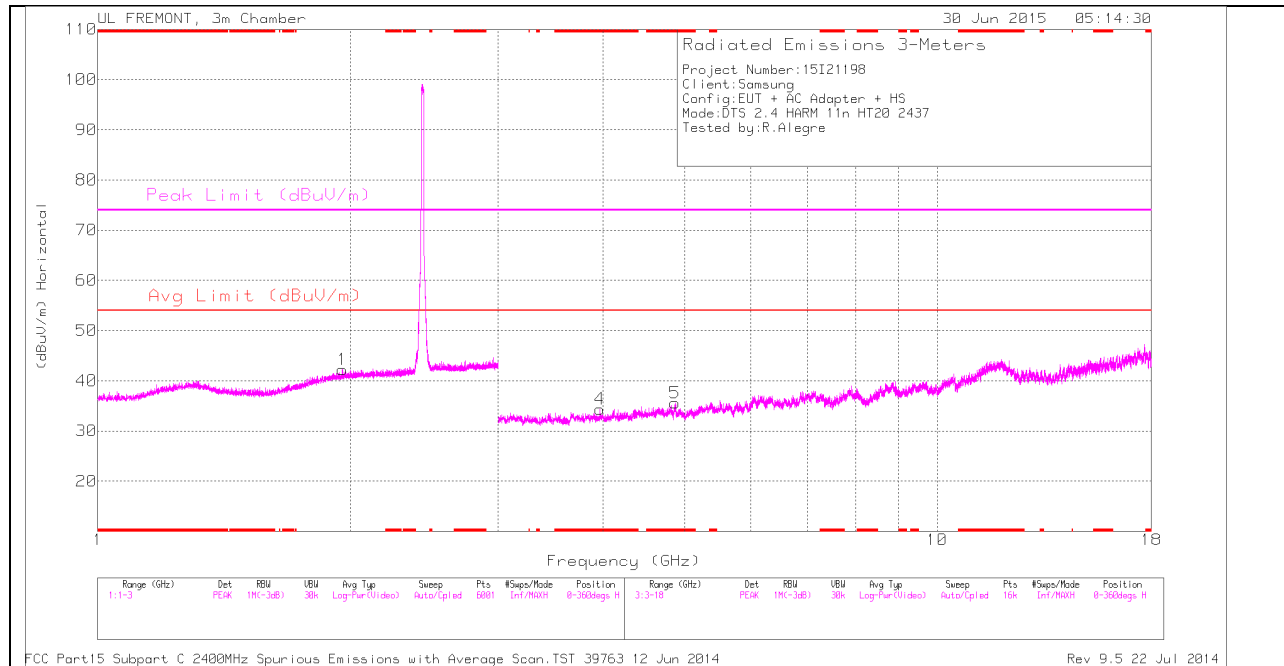
PK - Peak detector

RADIATED EMISSIONS

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.823	40.25	PK2	34	-29.4	0	44.85	-	-	74	-29.15	17	100	H
* 4.821	28.63	MAV1	34	-29.4	.19	33.42	54	-20.58	-	-	17	100	H
* 3.984	40.09	PK2	33.2	-30.5	0	42.79	-	-	74	-31.21	17	200	H
* 3.984	28.57	MAV1	33.2	-30.5	.19	31.46	54	-22.54	-	-	17	200	H
* 4.822	39.82	PK2	34	-29.4	0	44.42	-	-	74	-29.58	17	183	V
* 4.822	28.37	MAV1	34	-29.4	.19	33.16	54	-20.84	-	-	17	183	V
* 3.843	40.53	PK2	33.1	-30.4	0	43.23	-	-	74	-30.77	17	100	V
* 3.84	29.07	MAV1	33.1	-30.3	.19	32.06	54	-21.94	-	-	17	100	V
1.718	42.45	PK2	29.2	-22.7	0	48.95	-	-	74	-25.05	17	200	H
2.025	42.05	PK2	31.5	-22.5	0	51.05	-	-	74	-22.95	17	200	V

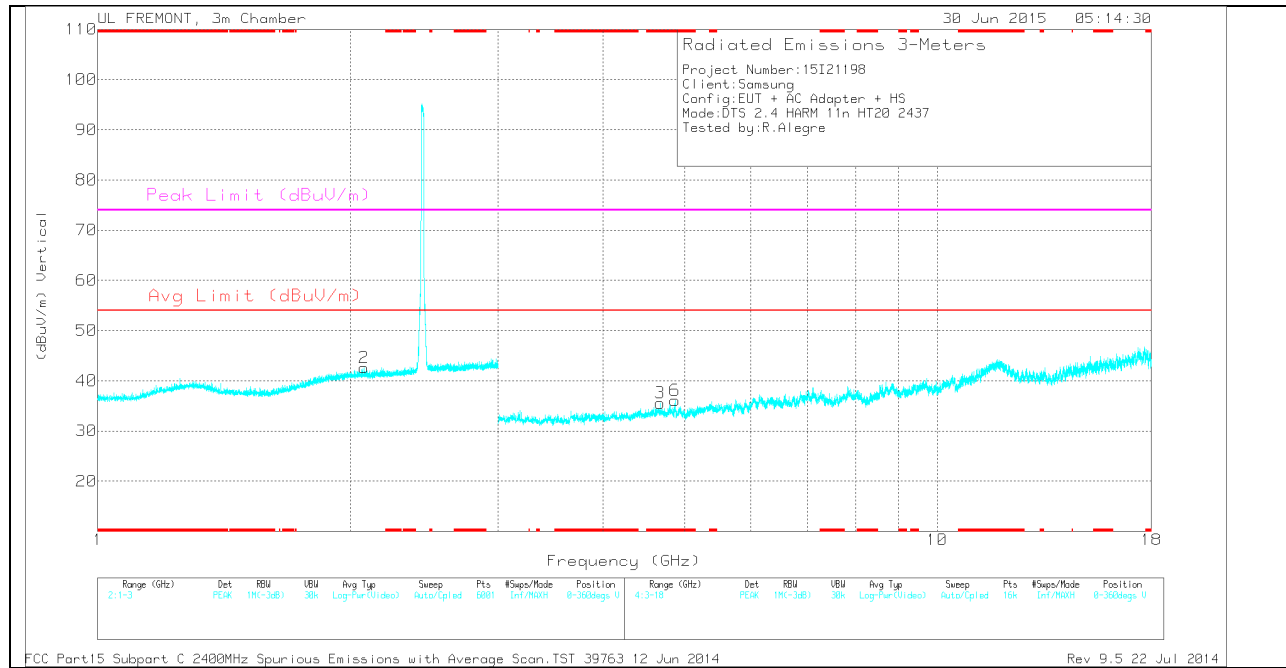
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MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 3.967	31.57	PK	33.2	-30.4	0	34.37	-	-	74	-39.63	0-360	200	H
5	* 4.871	30.68	PK	34	-29.1	0	35.58	-	-	74	-38.42	0-360	200	H
3	* 4.675	31.75	PK	34	-30.2	0	35.55	-	-	74	-38.45	0-360	200	V
6	* 4.871	31.19	PK	34	-29.1	0	36.09	-	-	74	-37.91	0-360	200	V
1	1.956	33.5	PK	31.3	-22.6	0	42.2	-	-	-	-	0-360	200	H
2	2.077	33.49	PK	31.5	-22.4	0	42.59	-	-	-	-	0-360	200	V

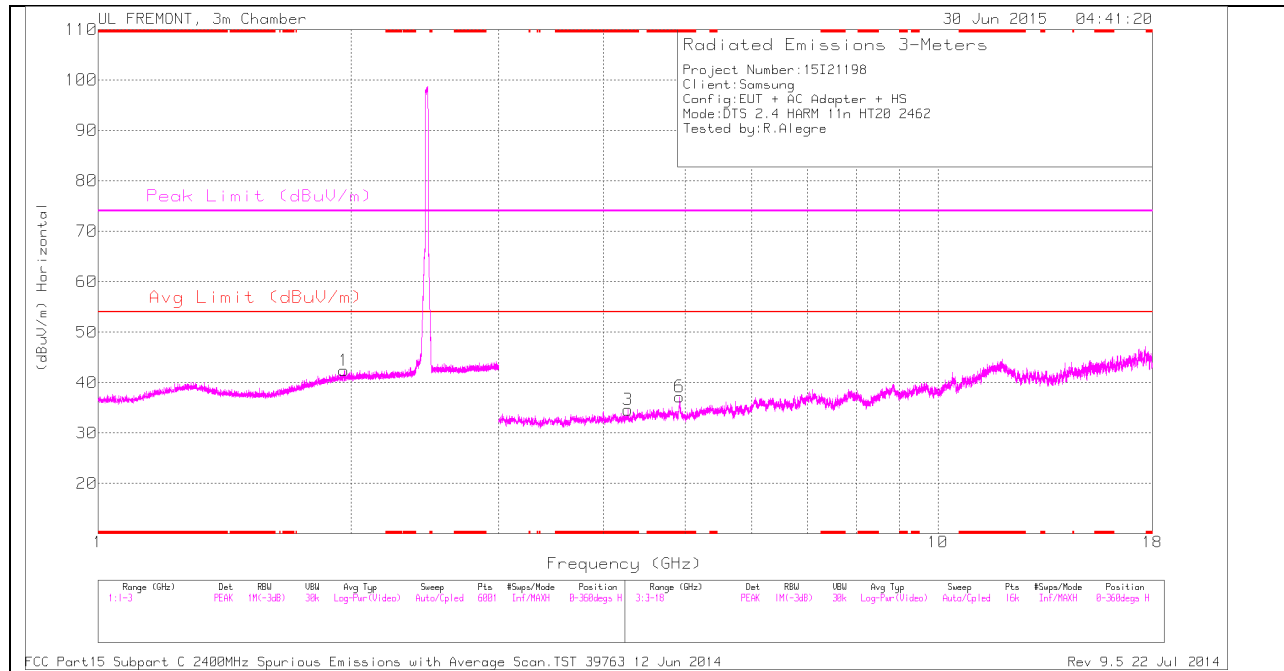
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.87	41.15	PK2	34	-29.1	0	46.05	-	-	74	-27.95	14	202	H
* 4.872	28.99	MAV1	34	-29.1	.19	34.08	54	-19.92	-	-	14	202	H
* 3.966	40.38	PK2	33.2	-30.4	0	43.18	-	-	74	-30.82	14	200	H
* 3.967	29.05	MAV1	33.2	-30.4	.19	32.04	54	-21.96	-	-	14	200	H
* 4.872	39.8	PK2	34	-29.1	0	44.7	-	-	74	-29.3	0	200	V
* 4.871	28.11	MAV1	34	-29.1	.19	33.2	54	-20.8	-	-	0	200	V
* 4.677	39.89	PK2	34	-30.2	0	43.69	-	-	74	-30.31	14	200	V
* 4.675	28.62	MAV1	34	-30.2	.19	32.61	54	-21.39	-	-	14	200	V
1.955	42.52	PK2	31.3	-22.6	0	51.22	-	-	74	-22.78	14	200	H
2.076	41.85	PK2	31.5	-22.4	0	50.95	-	-	74	-23.05	14	200	V

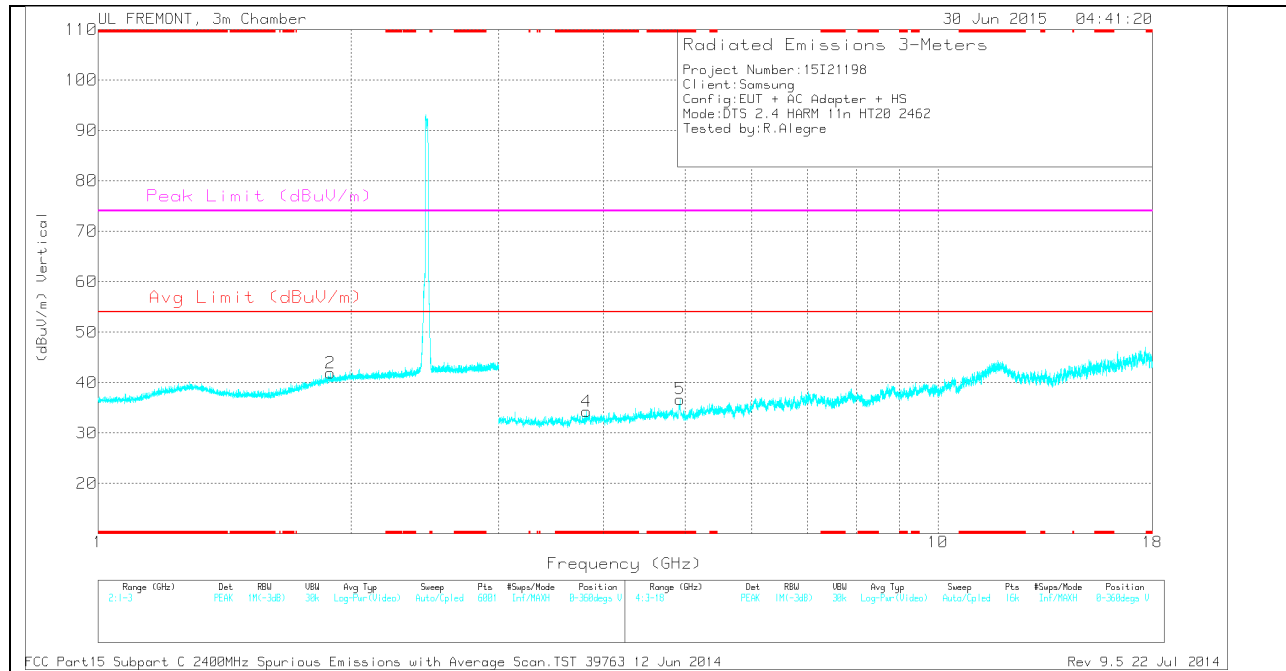
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HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL VERTICAL



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HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.274	31.52	PK	33.5	-30.4	0	34.62	-	-	74	-39.38	0-360	100	H
6	* 4.924	32.8	PK	34	-29.6	0	37.2	-	-	74	-36.8	0-360	200	H
4	* 3.817	31.58	PK	33.1	-30.4	0	34.28	-	-	74	-39.72	0-360	100	V
5	* 4.929	32.31	PK	34	-29.6	0	36.71	-	-	74	-37.29	0-360	100	V
2	1.891	33.5	PK	31	-22.6	0	41.9	-	-	-	-	0-360	100	V
1	1.962	33.61	PK	31.4	-22.6	0	42.41	-	-	-	-	0-360	100	H

PK - Peak detector

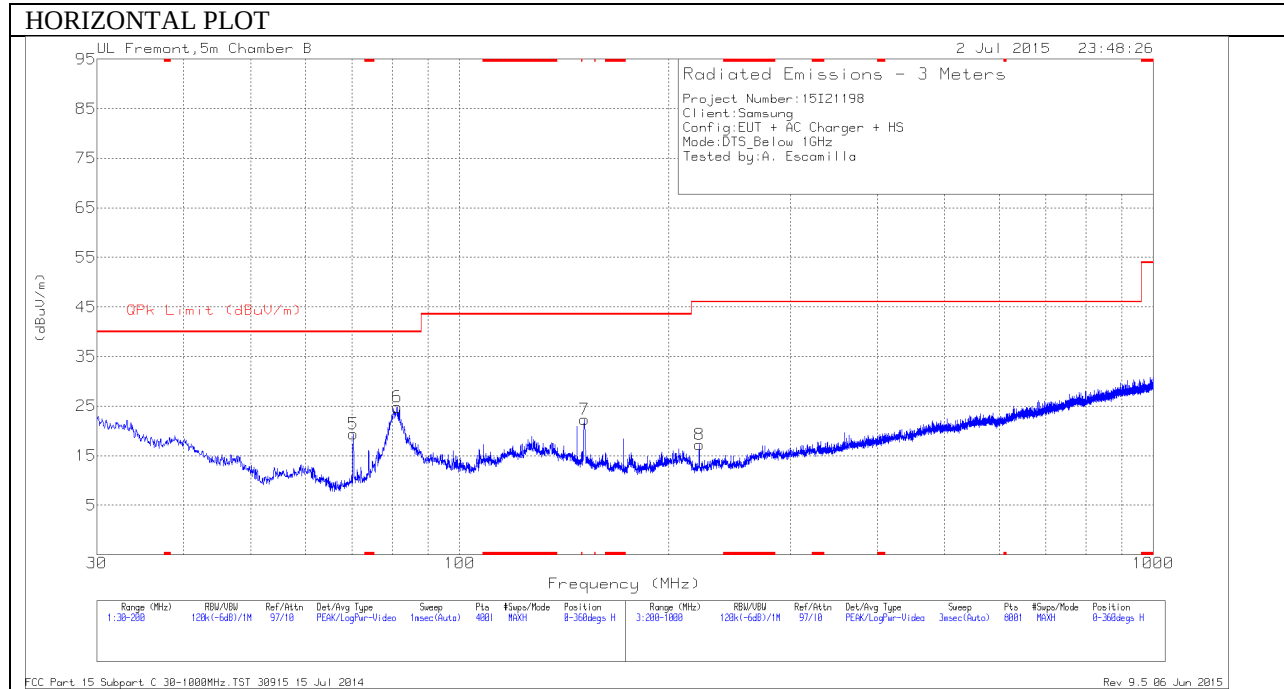
RADIATED EMISSIONS

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.925	43.41	PK2	34	-29.6	0	47.81	-	-	74	-26.19	318	354	H
* 4.923	30.65	MAV1	34	-29.6	.19	35.24	54	-18.76	-	-	318	354	H
* 4.272	40.49	PK2	33.5	-30.4	0	43.59	-	-	74	-30.41	15	100	H
* 4.275	29.05	MAV1	33.5	-30.4	.19	32.34	54	-21.66	-	-	15	100	H
* 4.927	42.25	PK2	34	-29.6	0	46.65	-	-	74	-27.35	15	143	V
* 4.927	30.67	MAV1	34	-29.6	.19	35.26	54	-18.74	-	-	15	143	V
* 3.817	40.02	PK2	33.1	-30.5	0	42.62	-	-	74	-31.38	15	100	V
* 3.819	28.7	MAV1	33.1	-30.4	.19	31.59	54	-22.41	-	-	15	100	V
1.891	42.32	PK2	31	-22.6	0	50.72	-	-	74	-23.28	15	100	V
1.961	42.82	PK2	31.3	-22.6	0	51.52	-	-	74	-22.48	15	100	H

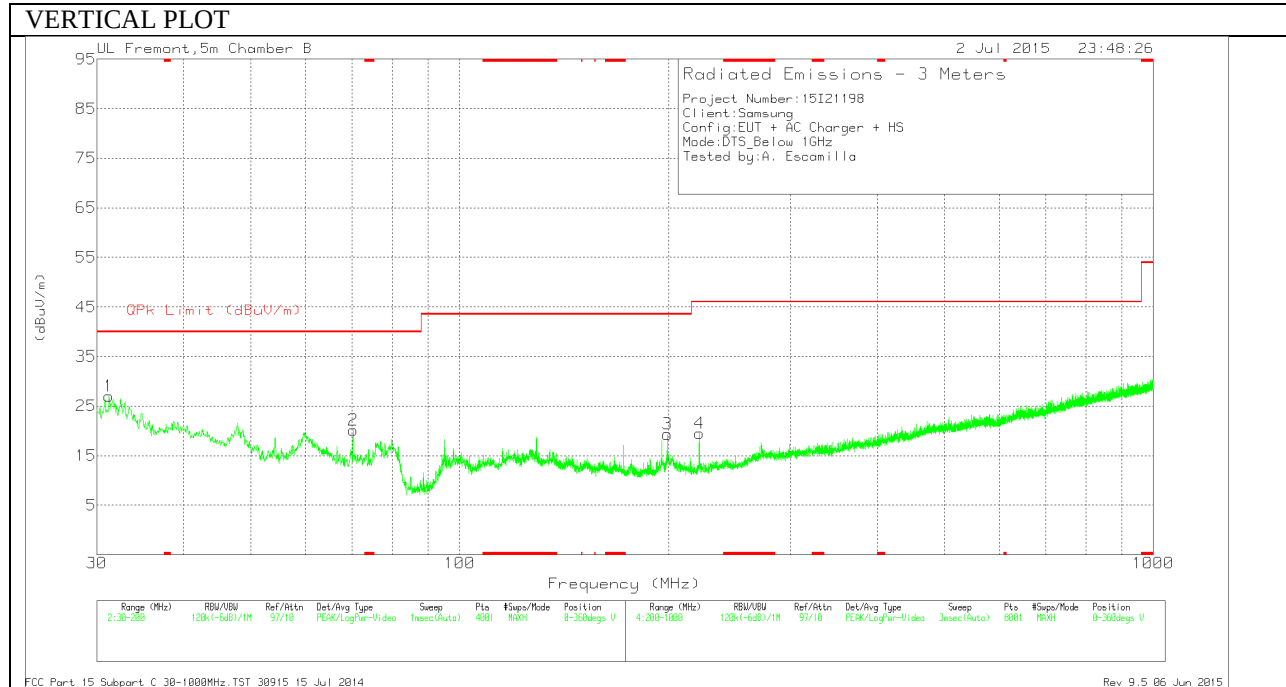
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

10.3. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)



Below 1G Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.2325	35.89	Pk	19.9	-28.8	26.99	40	-13.01	0-360	101	V
5	70.2475	39.62	Pk	8.1	-28.3	19.42	40	-20.58	0-360	100	H
2	70.2475	40.31	Pk	8.1	-28.3	20.11	40	-19.89	0-360	101	V
6	81.2125	45.48	Pk	7.5	-28.2	24.78	40	-15.22	0-360	199	H
7	151.2738	37.27	Pk	12.4	-27.4	22.27	43.52	-21.25	0-360	399	H
3	199.2775	33.62	Pk	12.6	-26.9	19.32	43.52	-24.2	0-360	101	V
8	221.5	33.07	Pk	10.8	-26.6	17.27	46.02	-28.75	0-360	101	H
4	221.5	35.28	Pk	10.8	-26.6	19.48	46.02	-26.54	0-360	199	V

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [*]	56 to 46 [*]
0.5-5	56	46
5-30	60	50

^{*} Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

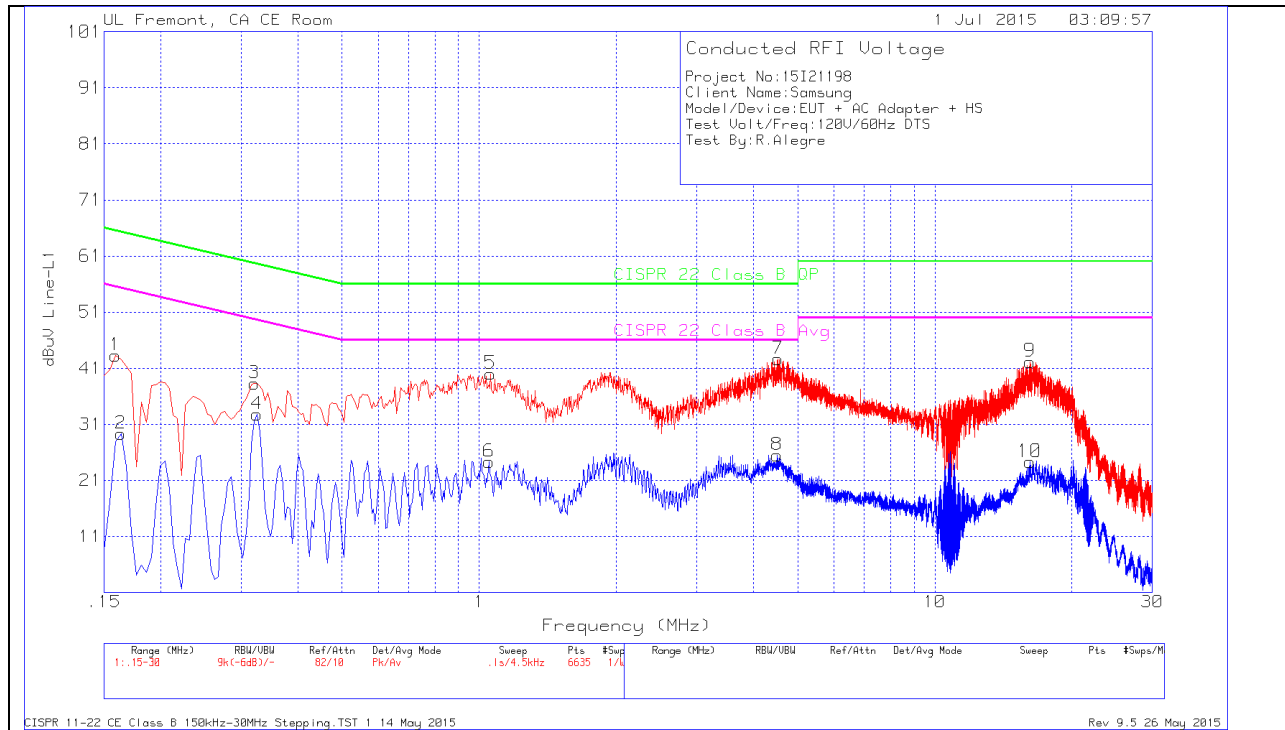
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

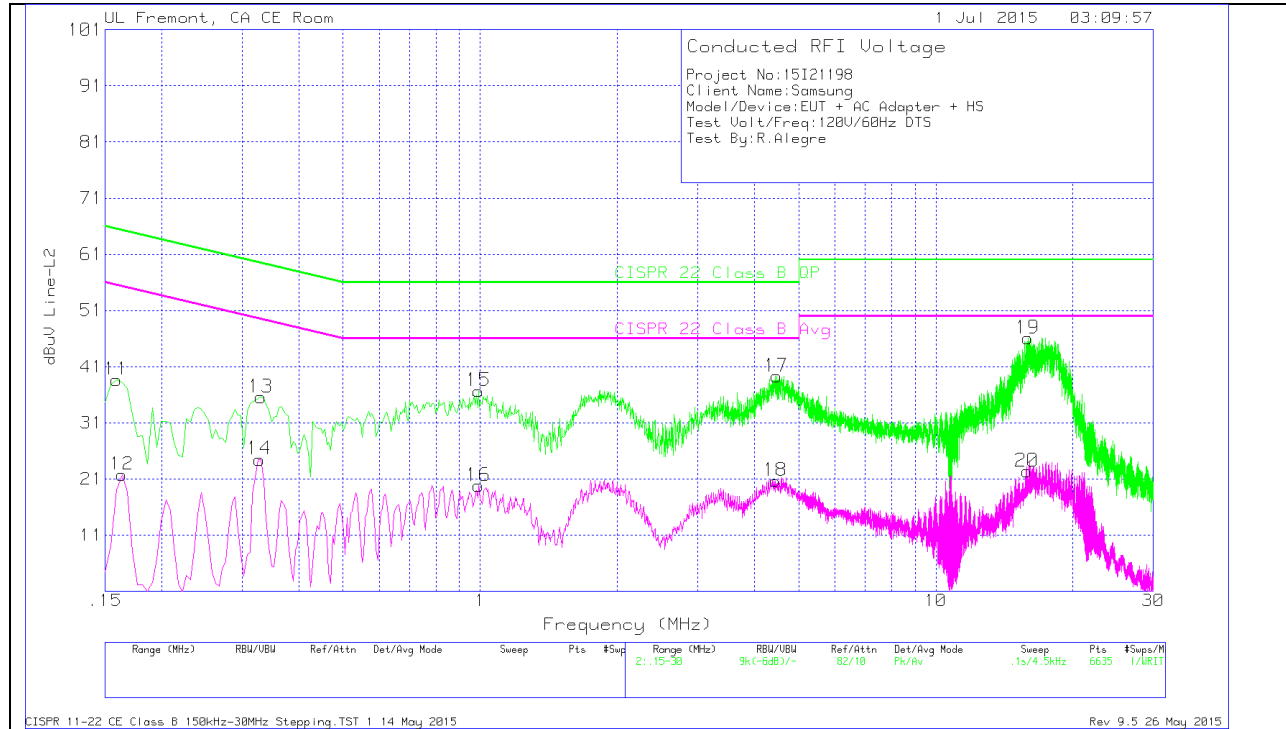
Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1	LC Cables 1&3	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
1	.159	41.98	Pk	1.3	0	43.28	65.52	-22.24	55.52	-12.24
2	.1635	28.11	Av	1.2	0	29.31	-	-	55.28	-25.97
3	.321	37.79	Pk	.5	0	38.29	59.68	-21.39	49.68	-11.39
4	.3255	32.26	Av	.5	0	32.76	-	-	49.57	-16.81
5	1.059	39.79	Pk	.2	0	39.99	56	-16.01	46	-6.01
6	1.05	24.09	Av	.2	0	24.29	-	-	46	-21.71
7	4.5285	42.34	Pk	.2	.1	42.64	56	-13.36	46	-3.36
8	4.5105	25.19	Av	.2	.1	25.49	-	-	46	-20.51
9	16.1655	41.66	Pk	.3	.2	42.16	60	-17.84	50	-7.84
10	16.1655	23.77	Av	.3	.2	24.27	-	-	50	-25.73

Pk - Peak detector

Av - Average detection

LINE 2 PLOT



LINE 2 RESULTS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2	LC Cables 2&3	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
11	.159	37.28	Pk	1.4	0	38.68	65.52	-26.84	55.52	-16.84
12	.1635	20.48	Av	1.3	0	21.78	-	-	55.28	-33.5
13	.33	35.05	Pk	.5	0	35.55	59.45	-23.9	49.45	-13.9
14	.32775	23.98	Av	.5	0	24.48	-	-	49.51	-25.03
15	.9915	36.36	Pk	.3	0	36.66	56	-19.34	46	-9.34
16	.9915	19.5	Av	.3	0	19.8	-	-	46	-26.2
17	4.47	38.97	Pk	.2	.1	39.27	56	-16.73	46	-6.73
18	4.4475	20.37	Av	.2	.1	20.67	-	-	46	-25.33
19	15.918	45.55	Pk	.3	.2	46.05	60	-13.95	50	-3.95
20	15.855	21.86	Av	.3	.2	22.36	-	-	50	-27.64

Pk - Peak detector

Av - Average detection